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SODIUM CITRATE TRANSFUSIONS

A STUDY OF ONE HUNDRED CASES *

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So much has been said for and against the transfu-n of *blood mixed with sodium citrate that it is* portant for every one who has had experience with his method to publish his results. I shall record 100 ransfusions on sixty-eight patients.

TECHNIC

It is not essential to review the literature referring o the various modifications of Lewisohn's original echnic. *In our series*, the blood was usually *collected* nto two large measuring beakers, each one holding 0 c.c. or more. The blood was then filtered through auze directly into an infusion flask or arsphenamin pparatus and allowed to run into the vein of the tient. Several technical points are of importance:

1. A large caliber cannula is used to get the blood from donor so that the required quantity of *blood* is obtained as short a time as possible.

2. A large cannula is also used for the recipient with the ame object in view. Naturally, there are limitations to this ate, depending on the particular illness or condition of the atient; for example, cardiac or pulmonary disturbances emand a slower current of blood, etc.

3. The blood should be kept at body temperature while it is *utside of the body and kept outside of the body* as short a ime as possible. *This can* be *assured* by *transferring* the lood *from* the *receptacles* in *which* it was collected into Erlenmeyer flasks or bottles, and these can be placed into a asin of warm water. Lewisohn has recently advised the use vacuum bottles.

4. Although it is absolutely essential to keep stirring the lood and citrate solution so as to mix them thoroughly and hus prevent coagulation, it is equally important not to stir oo vigorously in fear of the possible physical destruction f the various blood *constituents*.

5. *The sodium citrate must be chemically* pure and the vater in which it is dissolved freshly distilled.

SELECTION OF DONORS

The usual agglutination and hemolysis *tests* were lone as a *preliminary step to all transfusions. In no* nstance was *an* incompatible blood employed. The esults of the transfusions showed that blood tests *in* itro were an *absolute* index to the compatibility of the lood in vivo, as no symptoms of blood destruction, such as hemoglobinuria, were obtained. I believe *that* *there is no more doubt* as to *the* desirability of *blood* tests before transfusion. Naturally, in instances in which the proper donors cannot be procured or procured rapidly enough, the transfusion should not be omitted if its indications are extremely urgent as a life-saving measure. The risk of disturbances due to incompatibility may be taken, and under such circumstances it is wiser to select a donor whose serum agglutinates or hemolyzes the red blood cells of the patient rather than a donor whose red blood cells are acted on by the patient's serum.

In *performing* our agglutination and hemolysis tests, I employ the macroscopic *method, in which* 0.15 c.c. of serum (3 drops) from the patient is mixed in a small test tube with 0.05 c.c. (1 drop) of a 10 per cent. *red blood cell emulsion from* the donor and vice versa. The *mixtures* are incubated for three hours, placed *in the ice box* for twenty-four hours and then read. *If the result* is doubtful, the mixtures are examined *microscopically*. Whenever the condition of the patient warrants it, this method of selection of donors is advised for greater accuracy, rather than any of the more rapid or microscopic methods of agglutination with small quantities, even though it often carries with it the *disadvantage* of puncturing the vein in order to *obtain* sufficient blood. On the other hand, the advantage gained thereby is deemed of great importance; for, while one cannot say that all reactions after transfusion are due to *imperfect* matching of donor and patient, *some* reactions may certainly be explained in that way.

REACTION

A frequent objection raised to the sodium citrate method is that marked reactions are obtained after this mode of transfusion.

In our series of 100 transfusions:

(*a*) Forty-eight per cent. were associated with no reaction whatever; no abnormal manifestations either subjectively or objectively were noted.

(*b*) Ten per cent. had practically no reaction to speak of. There was a rise in temperature of 1 or 2 degrees for several hours, but the patients had no abnormal subjective sensations.

(*c*) Forty-two per cent. showed a definite reaction consisting of chilly sensations or chills, and fever; and in the severest types, vomiting. Of the 42 per cent.:

There was a rise of temperature up to 103 to 105 in eight.

There was a rise of temperature up to 102 to 103 in nineteen.

There was a rise of temperature up to 101 to 102 in fifteen.

Many of these temperatures remained elevated only *for a number* of hours and came down rapidly by a *form of crisis*; in the others, the fever came down by lysis, and three or four days were *required until the* normal point was reached.

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Of the 42 per cent. also, five had reactions with quite severe chills; twenty-five had milder but distinct chills, and seven just had chilly sensations or a feeling of coldness but no definite chill.

The chill usually comes on about one half to three quarters of an hour after the transfusion. If the blood flows in too slowly, as warned against above, this chill may come on during the time that the transfusion is being given and naturally is very disagreeable. In the severest type of reaction the chill itself as both observed by myself and as described by a patient, who was an intelligent writer, is more severe in intensity than any other form of chill (malaria, sepsis, etc.). It begins usually in the lower extremities by a feeling of coldness gradually extending up the spine and then over the entire body. Associated with this general, constant coldness, there are at intervals varying from seconds to minutes, exacerbations of this cold feeling turning into an active chill, so that the patient shakes. These exacerbations in instances are extreme, so that the patient is often jolted violently up and down in bed. The lips become blue, the pulse becomes rapid and the skin becomes extremely hypersensitive so that if, for example, the observer touches the side of the patient's face in order to take the temporal pulse, this will be sufficient stimulation to bring on a renewed chill. The patient usually asks for more and more blankets; but *no matter how much warmth is applied, it is not sufficient to remove or prevent the occurrence of another chill.* These chills last from five minutes to a half hour, and their subsidence is evidenced by the chilly exacerbations first leaving, and then the feeling of coldness disappears also. In contrast to malaria, subsequent perspiration is absent or only slight.

It goes without saying that such a marked reaction as the one just pictured is exceptional. It is described here because I wish to emphasize that in spite of the apparent severity, no harmful results either to the physical condition of the patient or to the value of the transfusion could ever be directly attributed even to such a reaction. All intermediate grades of disturbances occur between this severe syndrome and the absence of chills or chilly sensations. Rise of temperature usually follows the chill and will persist for several hours; or, as was said above, normal temperature may not be reached for three or four days.

It is illogical, as is done by some, to advise another method of transfusion in a particular instance because that particular patient seems too weak to stand a possible severe reaction. I was recently requested to use unmixed blood in a case of sepsis because the man was very weak and the consultant wished to avoid a possible reaction. The Unger method was employed; 500 c.c. of blood were transfused in a very few moments; and the patient had a reaction as severe as, if not severer than, any that I had ever noted with the method of sodium citrate.

Undoubtedly, there is something about the cause of the reactions that we do not understand. At one time I thought that possibly the blood platelets were the cause of the reaction; in other words, that while compatibility of the red blood cells exists, the blood platelets may not be compatible. My experimental work, however, showed that in the human being all blood platelets belonged to the same group and that there were no iso-agglutinins or isohemolysins for blood platelets. While a serum might be rich in agglutinins or lysins for the red blood cells of another individual, the blood platelets of the latter were in no way affected by that serum.

I have made the observation that certain donors regularly give severe reactions and others none at all. While this statement should not be taken without reserve, it is mentioned for corroboration by other authorities. Even if it does prove to be so, it still does not explain the phenomenon.

To summarize the question of reactions, it can be stated that the percentage of reactions after the sodium citrate transfusions is undoubtedly higher and possibly the reactions are severer than with the other methods of transfusion. At no time, however, are they harmful in any way, and therefore they should not influence one to select another method; especially so, when one considers the great technical and manifold other advantages of the citrate method. The advantage of its great simplicity is, to a certain degree, even a slight disadvantage. It is employed by physicians who have little if any surgical experience so that the transfusion usually takes much longer than it should, and the blood is allowed to remain outside the body unnecessarily long; in this way the method may fall into disrepute rather than be one of our greatest helpmates in medical and surgical therapy.

ACCIDENTS

The one accident to be considered in sodium citrate mixtures of blood, aside from the accidents of transfusions in general, is the possibility of the blood's clotting. In earlier transfusions this occurred several times and was due to one or two causes. First, that the sodium citrate and blood were not thoroughly mixed, and secondly, that a 0.2 per cent. mixture of sodium citrate and blood, that is, 50 c.c. of a 2 per cent. solution of sodium citrate to 450 c.c. of blood, was not sufficient for some donors; especially for donors who had already been used for transfusions. Both of these *errors can be overcome, the first by stirring the blood* and sodium citrate constantly, thoroughly, but gently, and the second by employing a 0.25 per cent mixture, that is, 50 c.c. of a 2.5 or even 3 per cent. solution of sodium citrate to 450 c.c. of blood. To be even more certain that no minute clots slip through, the blood is filtered (through several layers of gauze) into the infusion apparatus.

INDICATIONS FOR WHICH TRANSFUSIONS ARE UNDERTAKEN

The next and most important question to decide is whether blood mixed with sodium citrate is as efficacious as whole or unmixed blood. In order to discuss this, it would be wise to classify the indications for which transfusions are undertaken. These are:

1. To replace blood in hemorrhage of all kinds:
    (*a*) During the act of bleeding (and at the same time also to help stop the bleeding).
    (*b*) After the bleeding has stopped and an anemia with its sequelae remain.
2. To stimulate the blood-forming organs in blood diseases:
    (*a*) Pernicious anemia.
    (*b*) Leukemia.
3. To alleviate or cure hemorrhagic conditions:
    (*a*) Hemophilia.
    (*b*) Hemorrhagic diseases of the new-born.
    (*c*) Purpuras.
    (*d*) Complicating secondary hemorrhagic diseases, as jaundice, grave anemia and infections.

4. To act as a stimulant or tonic:
   - (a) Before operations.
   - (b) In debilitated conditions.
   - (c) In acute shock.
5. To neutralize or overcome effects of poisons:
   - (a) Bacterial infections.
     - Bacteremia:
       - Endocarditis.
       - Infections with pyogenic bacteria; typhoid; etc.
     - Toxemia only:
       - Diphtheria.
       - Peritonitis, etc.
   - (b) Chemical:
     - Diabetic coma.
     - Acute gas poisoning.
     - Acute yellow atrophy of the liver, etc.

HEMORRHAGE

As for the first class of cases, twenty-eight transfusions were performed to replace blood, immediately or some time after an acute hemorrhage had taken place. These hemorrhages occurred from various causes, such as nasal, pulmonary, vesical and uterine hemorrhages, including postpartum hemorrhages and hemorrhages from myomas, bleedings after tonsillectomy, bleedings from gastric ulcer, gastric cancer, duodenal fistula, hemorrhoids, and bleeding during typhoid fever. There were three deaths in this entire group. One of these patients had very severe uterine hemorrhage associated with pregnancy and a very marked nephritis. One was a young man who was suffering as a result of a severe gastric hemorrhage which set in long after a gastro-enterostomy for ulcer. He ultimately died of inanition. The third was an old man with severe hemorrhage from papilloma of the bladder. He had a moderate nephritis and never recuperated from the shock of the operation.

In all the other transfusions the results were absolutely ideal. Improvement started almost immediately. In several instances the results were short of miraculous. Patients in marked collapse, almost exsanguinated from the loss of blood, would speedily recover and recover sufficiently well to withstand a severe operation, such as a panhysterectomy, with comparatively little shock. In such cases another transfusion was given immediately after the operation, or part of the original blood was kept for this purpose. Naturally with no other form of transfusion could this have been done. In all cases in which transfusions were given not only to replace the lost blood but also to help in stopping the bleeding, this end too was attained. In the cases of pulmonary hemorrhage, of gastric or duodenal ulcer, hemorrhage after tonsillectomy or nasal operation, the transfusions undoubtedly helped to check the hemorrhage. This was particularly so in those with repeated or prolonged bleeding. In spite of some hesitation about transfusing immediately after an active hemorrhage on account of the danger from the rise of the blood pressure, all the patients received from 800 to 900 c.c. of blood without any harmful effects whatsoever. It is wise, however, to keep this possible danger in mind. In general, I am inclined to favor transfusions of large amounts of blood, naturally taking into consideration the size of the patient, his physical condition and any other possible contraindications.

Thus, it is noted that the sodium citrate transfusion is perfectly effective for the class of cases in which hemorrhage or its results has to be dealt with. Especially for the acute hemorrhage occurring in such great numbers at present on the battlefields, this form of transfusion is the only one to be considered. It can be performed very readily in the field, where large quantities of blood from various groups can be held in readiness. Rapid transfusion tests can be performed, or if the condition of the patient is too serious, these may be omitted entirely and blood from a Group II donor given. It will undoubtedly save many a comrade.

PERNICIOUS ANEMIA

The introduction of direct transfusion as a curative measure in pernicious anemia encouraged the medical profession only for a comparatively short time. I know of no case of true pernicious anemia in which there has been permanent cure by transfusion alone, no matter what method was employed. Recently, our hopes for conquering this disease have again been stimulated by the introduction of splenectomy as a therapeutic measure. It can already be said that the removal of the spleen can be offered only as a possible means of cure, and not as a certain means. In the early cures there have been relapses, and while I do not wish to express undue pessimism, it must be said that splenectomy with or without transfusion, either before or after operation or both, has not yet solved the problem of pernicious anemia.

The term "pernicius anemia" must be confined to that very severe grade of primary progressive anemia so classically described by Addison, in which no apparent causation is evident. It should not apply to these cases of pseudo pernicious anemia simulating the primary progressive but actually secondary to some focal infection discovered sooner or later. On the other hand, it is possible that all cases of true primary progressive pernicious anemia are not primary, but secondary to some such focal infection in most instances not discovered; such assumption has still to be definitely proved. The most one can expect of transfusion in pernicious anemia is, first, to overcome the symptoms of the severe anemia, and, secondly, to institute a remission and in this way prolong the patient's life, possibly for many years. The question at present under investigation is whether blood mixed with sodium citrate can accomplish this as well as whole or unmixed blood.

In this report thirty-three transfusions were performed on fifteen patients. Five patients showed little or no effect; of these, three were practically moribund at the time of transfusion and died within a few hours or days. The other two showed improvement for several days, and then, in spite of the temporary increase in hemoglobin and red blood cells, the anemic symptoms rapidly reappeared and the patients died. It is certain that no other method of transfusion would have succeeded any better, for the tissue cells were not in a condition sufficiently alive to respond to the stimulus. Of the other ten patients, all showed a progressive improvement following one or more transfusions. While it is known that patients with pernicious anemia have remissions even without transfusion, it seemed that remissions were initiated more promptly with the aid of transfusions. These remissions lasted from four weeks to twelve months, and in one case two years. All the cases of this series were of a severe type of pernicious anemia and came under treatment late during the course of the disease. It is certain that had not transfusions been done, death would have occurred within a short period of time. The life of these patients was undoubtedly prolonged.

As for the immediate effect of the transfusion on the symptoms associated with the anemia, no method of transfusion could surpass the results of the citrated blood. The transformation in the patient is short of miraculous. I know of no condition in medicine in which the rapid change is so marked. A very annoying symptom often complained of most bitterly by patients is the peculiar "surging" noises in the head, keeping the patient from resting and possibly due to the diminished viscosity of the blood. With one of my patients this was the first sign that the anemia was increasing and this was always corroborated by a much lowered hemoglobin. This manifested itself on four different occasions, and with each of the four transfusions which followed, after about 600 c.c. of blood had run into the veins, these noises regularly disappeared.

Improvement in the other symptoms becomes evident after several days; in some cases sooner. The hemoglobin and red blood cells always increase; the general strength of the patients improves; so much so, that they are able to get out of bed and walk without becoming faint or breathless; the frequent disgust for food lets off; they even get an appetite, and the digestive disturbances disappear. The rapid pulse becomes slower; and in two instances in which loud systolic murmurs were present over the entire precordium prior to transfusion, the murmurs almost entirely disappeared after the transfusion, only to reappear again, however, when the severe anemia returned. In three instances in which the patients had mild temperatures for weeks previous to the transfusion, these subsided within forty-eight hours after the transfusion. This should not be taken as characteristic of pernicious anemia, as the same observation was made in transfusion for simple chronic secondary anemia after hemorrhage (anemic fever).

How long does this state of improvement after the transfusion last? Our only answer can be, "Nobody knows; we must wait and see." As was said before under the discussion of remissions, the improved state may last only for a week or as long as several years. One transfusion may not suffice. It may require two, three, four or even many more to bring about a lasting result. Naturally, it depends to a great degree on the type of case. There is a form of pernicious anemia which is acute, virulent and rapidly progressing, in which the condition is very serious and the patient tends to go down the hill quickly, no matter what is done. The physician bears the responsibility here in that the transfusion should be undertaken early and not until the general condition of the patient or the hemoglobin is so low that the nutrition and life of the tissue cells is undermined. It must be remembered that anemia itself leads to disturbed functions or even degeneration. It is surprising how quickly certain patients will lose ground.[1] On the other hand, it is just as surprising to see how comparatively well patients will exist with a hemoglobin as low as 12 per cent. and red blood cells as low as 800,000.

If a given transfusion has not brought about a remission or the patient has not improved quickly, another transfusion should be undertaken without delay, possibly from a different donor. Then, too, if a patient has improved and a remission has set in, transfusion should be repeated just the same as soon as the very first evidence appears that the patient is not holding his own either in his subjective general feeling or by examination of the blood. There is no limit to the number of transfusions a patient may receive, and I have in several instances given 1,000 c.c. of blood twice in three days. In some cases in which repeated transfusions are undertaken, it is surprising to note that the patients will usually do well for the same definite period of time after each transfusion, for example, one month, and then the symptoms will recur. Furthermore, the recurrence will usually be initiated in the same patient by the same train of symptoms; for example, in one patient it was always the surging noise in the head; in another it was the complete loss of appetite; in another it was the complete exhaustion, etc.

In this connection, we all know that the patients with pernicious anemia have an achylia gastrica. In one case I was able to do a test meal again after the transfusion, when the patient felt very well; but no free hydrochloric acid or pepsin was found. Even in a case in which splenectomy was performed and improvement had set in, a pre-existing achylia remained. The relationship between lack of gastric secretion and progressive anemia is a problem often discussed; but no conclusion has been reached as to which is primary and which secondary. In another case, the patient was seen with a blood picture and clinical appearance of pernicious anemia; but hydrochloric acid was still present. Later on the free hydrochloric acid disappeared. This would speak for the achylia as a secondary manifestation; rarely, however, do we meet the cases early enough to determine this question.

With regard to the quantity of blood, here too I am in favor of employing large amounts, from 900 to 1,000 c.c. of blood—the more the better. While it is true that in pernicious anemia the new blood is supposed to stimulate the blood-forming organs, we have noted cases in which there will be evidence of the rapid manufacture of red blood cells without an improvement in the symptoms. In such cases the well being of the patient may depend on how long the fresh supply of normal blood is kept without being destroyed; and naturally the more blood he receives, the longer it may last him. A smaller quantity of blood may suffice to start a remission or stimulate the blood-forming organs in some patients, but one never knows before the transfusion what type of case one is dealing with; and therefore, we are safest with a large transfusion. Naturally one must take into consideration the usual factors of size, age and condition of the patient.

In two instances, compatible blood was used from two patients suffering from chronic nephritis; the blood showed high figures for the nitrogenous constituents. Not only were no harmful effects noted, but the usual good result was obtained. It is of importance to know that such blood may be used in an emergency, especially for cases of acute hemorrhage.

During the entire treatment of the patients with pernicious anemia, the physician should constantly keep in mind that he must exhaust every means to detect any possible focal infection and overcome it. Dr. Barker places an enormous amount of importance on the teeth as the source of this infection. In this series, no such direct association could be attributed. My experience cannot quite corroborate the recent tendencies of making teeth infections the clearing house for man's ailments. The pendulum is swinging too high in this direction. On the other hand, they should always be eliminated as the cause of disturbances.

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[1] In one patient the hemoglobin and red blood cells dropped to one third within two weeks.

In summary, it can be said without hesitation that the results obtained in pernicious anemia by sodium citrate transfusions are absolutely as favorable as those obtained by unmixed blood. In fact, the foregoing series compares almost identically with a similar series transfused with whole blood (Ottenberg and Libman). Furthermore, isolated instances can be cited in which sodium citrate transfusion seemed even more efficacious. Bernheim reports such a case. I, too, can add an example:

A woman, aged 50, received a direct transfusion of 900 c.c. of blood. An incision of the skin was necessary. Three weeks after, the severe anemic symptoms recurred, but the patient refused transfusion because of the difficulties associated with the operation and the lack of lasting improvement. A sodium citrate transfusion of 1,000 c.c. of blood was given in the guise of a medicated saline infusion; no incision was necessary. The improvement was so marked that the patient very willingly took another transfusion three weeks later. Two years have elapsed since then; the woman is up and about attending to her housework and apparently perfectly well.

It is too bad such favorable effects do not come more often.

LEUKEMIA

As for the therapeutic value of transfusion in cases of leukemia, the standard that is set by authorities who employed the unmixed blood is not very difficult to equal. Now and then a case with apparent distinct benefit for the time being is noted, but such improvement is short lived. In the present series, there were six transfusions in four cases of lymphatic leukemia, and one transfusion in a case of myelogenous leukemia.

One patient with acute lymphatic leukemia had severe bleeding from the nose and gums so that the loss of blood was becoming alarming. In addition, the patient had a high temperature. After the first transfusion of 600 c.c. of blood, the bleeding ceased, the fever came down, the hemoglobin rose from 28 to 60 per cent., and the patient felt much improved. This happy state of affairs lasted only for several weeks, when a renewed transfusion did not bring about a similar successful response. The high fever returned and the patient died.

A child, aged 3½ years, with chronic lymphatic leukemia showed marked improvement after a transfusion of 300 c.c. of blood. The change in the blood picture was very striking. The hemoglobin rose from 10 to 34 per cent.; the red cells increased from 1 to 2 million; the white blood cells decreased by 5,000 or more every day, so that three days after transfusion the leukocytes had diminished from 33,800 to 13,200; and whereas before the transfusion there were 100 per cent. lymphocytes, three days after the transfusion there were 28 per cent. polymorphonuclears. The general condition improved in the same striking way and kept up one week. Then another transfusion was given, but this time twice the quantity (600 c.c.). This may have been too much, as two days afterward there was dilatation of the heart and a slight edema of the lungs which ended fatally in five days. The blood picture, however, was remarkable: hemoglobin, 75 per cent.; red blood cells, 3,200,000; white blood cells, 7,200, and polymorphonuclears, 23 per cent.

I have mentioned these changes in the blood picture not because they are unusual, as they have been noted by other writers on transfusion. I merely wished to point out that sodium citrate transfusions accomplish this just as well as direct blood transfusions. No definite explanation can be given for the temporary halt in the disease or for the diminution in the white blood cells.

Another case of chronic lymphatic leukemia with severe bleeding from the gums and extensive gangrene of the roof of the mouth had no effect from a transfusion of 900 c.c. of blood. On the other hand, a marked benefit both clinically and hematologically was observed in another patient with chronic lymphatic leukemia of several years' standing. The diminution in the white blood count was not so evident (from 78,000 to 46,000), but the improvement in the general condition was much more striking.

Such immediate beneficial change was observed also in a case of myelogenous leukemia. After transfusion the fever dropped, the hemoglobin rose from 30 to 75 per cent., and the leukocytes diminished from 25,000 to 6,900. The patient's general condition was very much better, but one week after, he developed edema of the larynx and died.

In summarizing, blood transfusion is used in leukemia not with any idea of effecting a cure, but rather in the hope that the condition may be influenced to take on a more chronic form, with a resultant prolongation of life, or for the purpose of counteracting any acute complication or symptom associated with this dreaded disease. All this is readily accomplished by sodium citrate transfusion just as efficiently as by unmixed blood.

HEMORRHAGIC CONDITIONS

Under the heading of hemorrhagic conditions are to be found a number of different morbid conditions, having in common the one element of bleeding. Such hemorrhagic conditions include: (*a*) hemophilia; (*b*) hemorrhagic diseases of the new-born; (*c*) purpuras, and (*d*) secondary hemorrhagic diseases complicating such conditions as prolonged jaundice, grave anemias, leukemia and severe infections.

Some forms of bleeding are probably the result of infection, while others present developmental deficiencies of a serious order. Of the latter type, the most striking example is hemophilia, in which Howell has clearly demonstrated that the fault is to be found in a lack of prothrombin. It has been shown that transfusion of fresh blood favorably influences the cessation of the bleeding. The question that concerns us at present is whether blood mixed with sodium citrate can accomplish this just as well as whole blood.

The first patient, a boy, aged 14 years, was seen by me two days after the extraction of a molar tooth. Oozing had continued since the operation, and at the time of consultation the pulse was weak and rapid (136), the respirations increased, and the hemoglobin down to 56 per cent. All attempts to stop the bleeding were futile. The coagulation time of the blood was forty-eight minutes. Nine hundred c.c. of blood were transfused, and in six hours the bleeding had entirely ceased.

The second patient, a baby 2 days old, passed three large bloody stools. Fifty c.c. of the mother's citrated blood were given intravenously and the bleeding ceased.

The sodium citrate method is especially well adapted for this type of case; these babies are often brought to the hospital, and it is very practical to send an intern to the mother's home, where the blood is collected in citrate solution and thus transported to the hospital where it is given. Preliminary transfusion tests are unnecessary if the mother's blood is used.

Three patients with chronic jaundice from obstruction of the bile duct received transfusions of 900 c.c. of blood from eight to twenty-four hours previous to operation. The tendency to bleeding in this type of case is well known to surgeons. For several years we have been accustomed at the hospital to prepare these patients by administering to them from 200 to 300 c.c. of human serum subcutaneously during the forty-eight hours previous to operation. Either 50 c.c. three times a day or 75 c.c. twice a day was the usual routine. The results from this method have been very satisfactory. In the three cases in which sodium citrate transfusions were performed instead, the results as far as bleeding is concerned, were just as satisfactory; and there were several advantages: first, the entire technic was less complicated and, second, the patients had the additional advantage of a fresh supply of normal blood.

One patient with chronic jaundice from gall duct disease was operated on without preliminary transfusion or serum treatment. An oozing of blood from the wound started soon after the operation and continued for four days, when 800 c.c. of citrated blood were transfused. The bleeding at once began to diminish, and in three days it had ceased entirely.

Dangerous hemorrhages associated with two cases of leukemia (one from the nose and one from the gums) and two cases of pernicious anemia (one from the uterus and one from the mouth) ceased immediately after transfusion.

Thus, while the number of cases with hemorrhagic tendencies in this series is not very numerous, still the almost perfect results in all is sufficient to demonstrate clearly that the presence of sodium citrate mixed with the fresh blood does not interfere with the action of the latter.

AS A SUPPORTIVE MEASURE

Transfusions can be employed to a very great advantage as a tonic in debilitating conditions. Medicinal aid, such as iron and arsenic, prove valuable adjuvants, but only after transfusion, when the vitality of the tissue cells has improved. In patients with very little recuperative power, a long drawn out convalescence can be definitely hastened by transfusion; patients in a run down state about to undergo a severe operation can often be saved from fatal termination by preliminary transfusion; patients afflicted with an incurable disease and suffering from disturbances associated therewith can be spared their last days of misery and acquire comparative comfort by means of transfusions. Such and similar conditions were the indications in fifteen patients of our series.

Each of seven patients was given a transfusion preliminary to operation; two women very much weakened by long continued uterine hemorrhages withstood complete hysterectomies successfully; it is doubtful whether this would have been possible without transfusion.

Two patients with anemia due to repeated bleedings from hemorrhoids for years received 750 c.c. of blood previous to operation.

One patient with Banti's disease received a transfusion preliminary to splenectomy. In this particular instance I am almost certain that the patient would not have survived the operation. The anemia was of a very severe grade (32 per cent. hemoglobin); there was an associated endocarditis, and in addition there was a tendency to nasal hemorrhages and recurrent rises of temperature. In spite of these complications the operation and convalescence passed uneventfully.

A patient with carcinoma of the intestine withstood a difficult resection of several feet of intestine without any disturbance.

An extremely undernourished girl with sarcoma of the hip (afterward found to have general sarcomatosis), who had been in bed with high temperature for weeks, withstood without trouble a difficult hip resection.

Naturally, one cannot say absolutely what the results would have been in any of these instances had no transfusion been given; but one can be reasonably sure that some of the patients would not have recovered from the operation, and it is certain that their condition after the operation would have been more stormy. I am convinced that nothing more could have been accomplished by the transfusions of whole blood.

As a purely palliative tonic measure, transfusion was employed in eight instances; one case with inoperable carcinoma of the rectum; one case with general carcinomatosis of gastric origin and marked inanition; one case of biliary fistula; two cases of noneffective gastro-enterostomies; two cases of marked inanition from severe diarrhea, and one case of extreme malnutrition associated with a long drawn out sepsis following a pelvic abscess. None of these patients recovered; but nothing else could be expected because the underlying condition was one that could not be remedied. On the other hand, all the patients showed definite clinical improvement. As far as the sodium citrate question is concerned, one can with almost absolute assurance state that transfusions of whole blood instead of citrated blood would have offered no more favorable statistics. No type of transfusion can cure organic pathologic changes.

THE NEUTRALIZATION OF POISONS

The possibility that blood from a healthy donor may be employed to overcome the effects of various types of poisons was one of the earliest great expectations from transfusion.

Poisons may be thus subdivided:

(*a*) Bacterial infections with:
  Bacteremia:
    Endocarditis, infections with pyogenic organisms, typhoid, etc.
  Toxemia only:
    Diphtheria, etc.
    Peritonitis, etc.
(*b*) Chemical:
  Diabetic coma.
  Acute gas poisoning.
  Acute yellow atrophy of liver, etc.

BACTERIAL POISONS

As soon as the principles of immunity were more closely investigated, it was apparent that in bacterial infections, transfusion of blood was mainly of use for its general strengthening effect rather than for its specific bactericidal or antitoxic effect, because the normal blood usually has less specific antibodies than the infected individual. For this reason there has been advised the artificial immunization of donors against the specific infecting agent previous to transfusion. Not only do such immune donors have a great number of specific antibodies in the plasma (humoral immunity), but it is possible that on the basis of the cellular immunity, red blood cells share the powers of immunity with the other tissue cells; and thus, by transfusion, we are transferring immune cells which may continue to functionate.

Five patients suffering from subacute infective endocarditis were transfused. In one patient who had only eight bacterial colonies per cubic centimeter of blood before the transfusion, the blood culture became sterile and remained so for one week after the transfusion. A repeated transfusion from the same donor later on did not, however, bring about the same hoped for result; so that the transfusion cannot be definitely credited with the bacterial free state of the blood. One patient received blood twice from a donor previously immunized with the *Streptococcus viridans*, but no special effect on the number of colonies after transfusion was noted.

None of the patients ultimately recovered; but the transfusions had a very marked beneficial effect on all of them and undoubtedly prolonged life. Before the transfusion there was frequently no appetite and complete lack of strength, causing severe exhaustion at the least exertion. The change in the subjective feeling of the patients after transfusion was very pronounced. As one of my patients put it, it renewed his lease of life.

Infective endocarditis still leans toward the incurable class of diseases, so that transfusions from an immune donor should be undertaken as early as possible and not delayed until the poisons have affected the tissue cells too severely to react.

As for infections with pyogenic bacteria, there was a case of staphylococcus bacteremia associated with osteomyelitis. The patient was a boy, aged 12, with a bad infection of the tibia that resulted also in a severe grade of anemia (39 per cent. hemoglobin). Resection of the lower end of the tibia did not bring about a cure. Three weeks after, a transfusion (600 c.c.) was undertaken with a splendid result. Improvement started immediately, and in six weeks the patient went home, having gained 16 pounds in weight, with the hemoglobin up to 65 per cent. and the leg practically healed, almost ready to walk.

Not so brilliant, however, was the outcome in two cases of streptococcus (hemolytic) sepsis associated with intra-uterine infection. Repeated transfusions in both patients gave only a slight temporary improvement; the infections progressed rapidly to a fatal issue.

Such also was the result in a case of peritonitis following an appendectomy for a virulent gangrenous infection. The blood culture was sterile; but the general toxicity was extreme, and the patient died.

A child, aged 5 years, with diphtheria, who had received a large dose of antitoxin but in spite of which showed evidences of a severe toxemia (coma, albuminuria and bradycardia), was bled (300 c.c.) and then transfused with 300 c.c. of citrated blood. No change in the condition was noted, and the patient died.

Thus it is realized that much is still desired of transfusion as a therapeutic means for bacterial infections. This pertains not only to citrated blood, but also to whole unmixed blood. The use of immunized donors holds out greater hope, but statistics are still too few to permit a conclusive opinion.

As for chemical poisons, our experience is limited. A diabetic patient who had been operated on for gangrene of the foot suddenly developed severe diabetic coma. The ordinary therapeutic measures produced no effect. Venesection with removal of 500 c.c. of blood was followed by transfusion. The improvement was distinct; the patient revived from her coma but relapsed again in twenty-four hours. Venesection and transfusion were repeated, and while a noticeable improvement again occurred, the patient did not recover.

Similarly unsuccessful was the result in a woman suffering from toxemia following labor. Favorable results have been reported for the use of whole blood transfusions in gas poisoning. The present series does not include such an example, but there is no doubt that the action of citrated blood will be just as efficient as whole blood.

COMMENT AND SUMMARY

When transfusion was first introduced, it was grasped at as a cure for almost every disease. Accordingly, our disappointment was the greater when the hoped for did not materialize. At the present day, however, we have limited the indications and realize the shortcomings.

Absolute cure from infusion of blood can be ascribed to only comparatively few types of disturbances. It undoubtedly is a life saver in patients suffering from hemorrhage of whatever origin. This is being best demonstrated during this world struggle. In the numerous other conditions for which transfusion is given or advised, it is the most efficient means for prolonging patients' lives in comfort or for aiding them to recover much more quickly than they otherwise would. All these indications are fulfilled by the sodium citrate method of transfusion just as successfully as by the other methods of whole blood transfusion, and much more easily. In fact, it is the only means that is feasible under some circumstances, for example, the present day indications on the battlefield. Here large quantities of blood of each group can be held in readiness for any emergency and, if necessary, can be given in the field. The citrated blood will keep well for days or even weeks.

It is true that uncomfortable reactions follow infusions of citrated blood more often than unmixed blood, but in no way have these been harmful to the patient or interfered with the fresh blood's favorable effect. The cause of these reactions has not been definitely established. Several factors will probably have to be taken into consideration. I believe that some change occurs in one of the blood constituents, possibly the platelets or leukocytes. This results in the chill and the subsequent fever which resembles so closely the symptoms following intravenous administration of vaccines or proteins. In any event, all attempts should be and are being made to eliminate this reaction.

CONCLUSION

One hundred transfusions by the sodium citrate method have been performed for various disturbances, and the favorable results compare almost absolutely with those obtained by other authors using unmixed blood. It should, therefore, except only in special instances, be adopted as the routine method, since both the clinical and the laboratory findings support this view.

Terminal Disinfection.—Cleanliness, fresh air, proper care of the sick, correction of ill-considered personal habits are more to be commended than the potencies of various germicides, and such are more in accord with the tenets of preventive medicine.—*Weekly Bulletin*, Department of He
New York City.

ORIGIN OF THE SO-CALLED AUTO-INTOXICATION SYMPTOMS *

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The cave man of the glacial period and the savage of today would doubtless agree that practically all disease is due to the malevolence of evil spirits. That idea constituted the first system of medicine. The next one appeared with the dawn of civilization, when men awoke to the possibility that some diseases might arise from spontaneous derangements of the bodily functions, particularly those concerned in excretion. hey reasoned that if feces are foul, then the body ust be in the best condition when freest from such material. This idea, which is based on what appears to be an obvious truism, has always been an attractive one, particularly to the lay mind. The ancient Egyptians purged themselves at certain times in the moon's cycle, just as many people now take calomel in the spring. For thousands of years, physicians have been in the habit of purging their patients when they have not known what else to do. We see, then, that the present day dread of stasis and "autointoxication" is nothing new. In the eighteenth century, the high priest of the cult was Johann Kämpf, who believed that all disease was due to impacted feces. Under his teaching the use of large medicated enemas became immensely popular, and the apothecaries fattened off the hypochondriacs then, just as the "internal bath" specialists do today.

The medical historian feels, therefore, that the ready acceptance of the views of Bouchard, Metchnikoff and Lane in the twentieth century must be due in large part to the fact that they fit into this great background of inherited belief. Still another factor in the rapid dissemination of these ideas has undoubtedly been the advertising campaign of those who would sell liquid petrolatum, agar, indigestible foods, sour milk, and patented syringes. One cannot blame the layman for his prompt conversion to what appears to him to be a sensible enough doctrine, but it does seem as if the scientific physician should look into the matter more carefully before he starts inoculating his patients with fear.

THE DIAGNOSIS OF "AUTOINTOXICATION"

I wish in this paper first to protest against the thoughtless way in which many of us are constantly making this diagnosis of "autointoxication." I do not deny that there may be such cases, but my experience in looking over the people who have been classified as such by other physicians makes me feel that the real article must be rare.[1] Time and again I have been put to the embarrassment of having to point out to some brother physician that his beautiful case of "autointoxication" was really an aortic regurgitation, a chronic nephritis, a myxedema, a high blood pressure, tuberculosis or some other well known disease. In the most recent of such cases, there was a hemoglobin of 45 per cent., a systolic blood pressure of 200 mm. of mercury and a large fibroid tumor of the uterus. The patient's physician was surprised to find that the constipation which he thought was primary and responsible for all her symptoms was really one of the least of her troubles. It undoubtedly is true, as Taylor[2] says, that fashions in the "cloak for ignorance" change just as they do for other wearing apparel. When confronted by puzzling cases, we probably will always have a tendency to fall back on stock diagnoses, such as "too much uric acid," "typhoid-malaria" or "disturbances in the autonomic nervous system." Just at present the popular fancy seems to turn to "autointoxication" and "focal infections."

There are a considerable number of men, however, who do examine their patients and who still believe, after finding nephritis, hypertension, arteriosclerosis or gastric ulcer, that these diseases are due, directly or indirectly, to intestinal stasis. Some persist in this view even when it is shown that the patient has no stasis. Such men, it seems to me, are hopeless and beyond the reach of argument. The others who have demonstrated abnormal stasis in their patients may be in the right; I respect their position, but I believe it is weak. When men like Alonzo Taylor[3] and Adami[4] with their great technical knowledge tell us that there is no real evidence to support the theory of intestinal toxemia, and that the pathologic findings can be explained more easily in other ways, it seems to me that we should be slow to accept the enthusiastic claims of rough and ready surgeons who have short-circuited a few colons.

UNPROVED ASSUMPTIONS

It is not sufficient to show that toxic substances can be formed during the bacterial destruction of nitrogenous matter. It must be shown that these toxins are formed in the intestine; that they can pass through the mucous membrane; that they can escape destruction in the liver; that they can reach the general circulation in amounts sufficient to produce symptoms, and that the symptoms produced by the repeated injection of small doses of these substances into animals are similar to those observed in constipated men. Unfortunately a review of the literature on these suspected toxins shows that little has been done with most of them beyond proving that they may be formed in vitro. Others, such as albumoses and peptones, are known to be present in the intestine; some of them are highly toxic when injected into a vein, but they are harmless when taken by mouth. The same thing may be said about many bacterial toxins. Filtered cultures of virulent cholera vibrios that will produce severe gastroenteritis and death when absorbed from the peritoneal cavity will have no effect when injected into the bowel.[5] We know also that antitoxins, secretin, epinephrin and other organic substances cannot be administered successfully by mouth. It is even more remarkable that such simple molecules as magnesium sulphate and lactose are practically unable to pass through the intestinal mucosa.[6] Many such examples could be quoted,[7] all showing how certain we must be on this point of absorption before we can ascribe the symptoms of "autointoxication" to any one substance.

Those who are impressed by the enormous numbers of bacteria found in the feces should remember that

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* From the George Williams Hooper Foundation for Medical Research, University of California Medical School.

[1] Clendenning (Interstate M. J. **22**:1197, 1915) says, "I only know that the more carefully I examine any group of patients, the more completely do such things as chronic intestinal stasis melt out of my records."

[2] Taylor: Digestion and Metabolism, Philadelphia, 1912, p. 455.

[3] Taylor: Modern Medicine, Philadelphia **2**:503, 1914.

[4] Adami: Brit. M. J. **1**:177, 1914.

[5] Denys and Sluyts: La cellule **10**:67, 1893. Nesbitt: J. Exper. Med. **4**:6, 1899.

[6] Cohnheim: Nagel's Handbuch der Physiologie, Braunschweig **2**:615, 1907.

[7] Woolley: Jour. Lab. and Clin. Med. **1**:45, 1915.

nearly all of them are dead. Distaso[8] and others have pointed out that they cannot multiply in constipated feces on account of the dryness and the lack of nitrogenous food. Only in the cecum can a little peptone be found. It seems clear also that there are antibacterial forces at work in the bowel, and we must be very careful in drawing conclusions from the results of experiments in vitro. It must be remembered, moreover, that the great number of intestinal bacteria produce no soluble toxins. Even those that do produce toxins may do little harm because, as we have seen above, these substances are often unable to pass unchanged through the mucosa.

According to Mutch,[9] who has written one of the chapters in Lane's book and who is often quoted by those who believe in "autointoxication," the luxurious flora of the colon is a protective and useful mechanism in that it insures the rapid breaking down of amino-acids or other nitrogenous substances "into relatively innocuous bodies such as phenol, ammonia, water, carbon dioxid and hydrogen." To this list he adds later indolacetic acid, indoxyl and indol.[10] Mutch realizes also that in the colon there is even less chance for absorption of toxic substances than there is in the small bowel. He admits that there is no absorption demonstrable even when short circuiting changes the colon into a blind sac full of stagnating feces. We know from researches on nutrient enemas that practically nothing can be utilized besides water, salt and a little sugar.[11] We know also that the feces begin to harden in the ascending colon, and thereafter they undergo practically no churning movements. They tend to go forward through the remainder of the bowel like cars on a track. This fact is brought out not only by the roentgen ray, but particularly by the study of fecal masses, in which one can often see sharp lines of cleavage between residues from two different meals. Very little absorption can be expected under such circumstances. To get absorption the feces would have to be liquid and churned actively to and fro as are the contents in the jejunum.

THE EFFECTS OF STASIS

Many of the writers on autointoxication have recognized this difficulty and have struggled to evade it. Bouchard[12] felt that colonic stasis could do little harm, and he even went so far as to say that with the dying out of the bacteria in the hard, dry feces, "constipation ought to be regarded as a protection against autointoxication." He thought the poisoning was to be observed "in chronic diarrhea, in cancer of the stomach or intestine, in chronic dyspepsia and above all, in dilatation of the stomach. Whenever he could get splash sounds in a woman's stomach he ascribed all the symptoms or pathologic findings she had to "autointoxication." Since then, of course, the roentgen ray has shown us that the stomach rarely retains its contents long enough for any fermentation or absorption of toxins.

Combe[13] also admits that colonic stasis probably can have little effect on health, and that the stagnation and absorption must be looked for elsewhere in the tract. The roentgen ray has since shown us in thousands of constipated people that the colon is practically the only place in which stagnation does take place. In some cases there is a little delay of the contents in the last few inches of ileum, and in rare instances there is a little stagnation in the duodenum. I am willing to believe with Mutch and Lane that stagnation in the small intestine might give rise to the absorption of substances which ordinarily would be broken down in the colon or voided by the rectum. My experience makes me feel, however, that in nine out of ten cases the stagnation is not of sufficient duration to allow of much bacterial action. Moreover, any symptoms complained of by these people may be due to the chronic appendicitis which is so often the cause of the iliac stasis. I believe the duodenal stasis described by Jordan[14] is produced artificially by his giving the barium shortly after a meal. I agree with other observers that duodenal stasis is rarely seen, and that it probably has little to do with autointoxication. Mutch takes refuge in the terminal ileum as about the only place in which toxic substances can be formed and absorbed. There alone do we find a few "selected bacteria not too numerous and not too versatile in their chemical potentialities." He found, in a few of the short pieces of ileum removed at operations by Lane, a bacillus which forms from histidin a substance, beta-iminazolylethylamin, which markedly lowers the blood pressure when injected into animals. From observations in fourteen cases he felt he had "proved definitely" that this substance is responsible for the low pressure seen in some cases of autointoxication. He claims that an ileocolostomy frees the urine from toxic substances absorbed from the terminal ileum, although we know now that that operation usually makes the ileac stasis much worse than before.

There are other things in Mutch's articles that make one uneasy about accepting his conclusions, and now further doubt has been cast by the work of Mellanby,[15] who found that he could obtain beta-iminazo only with pure cultures of certain bacteria. Other organisms, when present, broke it down as fast as it was formed. It was not absorbed from the colon, but was rapidly destroyed there by relays of bacteria. He says the substance is such a powerful stimulant to smooth muscle that it must produce diarrhea and vomiting as soon as minute amounts are formed. He cannot believe that it has anything to do with constipation; nothing short of a mechanical obstruction would keep the bowel from voiding it immediately. If beta-iminazo has any clinical significance he thinks it is in the vomiting and diarrhea of children!

NEED FOR SCRUTINIZING RESEARCH REPORTS

I have gone into the subject thus at length to show how carefully we must study the reports of research workers before we quote them in support of a favorite theory. Some of my friends who believe that autointoxication produces high blood pressure say, "Hasn't some one found a pressor substance in the intestine?" I believe not. Dale and Dixon have suggested that three amins closely related structurally to epinephrin may be formed from protein during intestinal putrefaction. One of these substances, parahydroxyphenylethylamin, has much to do with the pharmacologic actions of ergot. It seems to me unlikely that these substances have anything to do with hypertension as we see it in practice. If they were responsible for the increased pressure we would expect it to drop to normal after purgation or during periods of normal intestinal activity. Such, I feel certain, is not the case. Moreover, Dale and Dixon found that these drugs when given repeatedly soon lose their effect, whereas we know that hypertension tends to become progressively worse. Mutch has suggested indolethylamin as the cause of hypertension, but Laidlaw and Ewins have found that it is destroyed in the liver before it can do any damage.[16]

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[8] Distaso: Centralbl. f. Bakt., orig. **59**:48, 1911; **75**:507, 1915.

[9] Mutch: Brit. J. Surg. **2**:608, 1915.

[10] Herter (New York M. J. **68**:89, 116, 1898) showed that indol is comparatively harmless even when given to men in doses enormously greater than those ever encountered in health or disease.

[11] Bywaters and Short: Arch. f. exper. Path. u. Pharmakol. **71**:426, 1913. Edsall and Miller: Tr. Coll. Physic., Philadelphia **24**:225, 1902. Wynter: Brit. M. J. **2**:1720, 1902. Adler: Am. J. M. Sc. **150**:565, 1915.

[12] Bouchard: Lectures on Auto-Intoxication in Disease, or Self Poisoning of the Individual, translated by Oliver, Philadelphia, 1894, p. 145.

[13] Combe: Intestinal Autointoxication, London, 1908, p. 111.

[14] Jordan: Arch. Roentg. Ray **18**:231, 1913. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of Vie J. A. M. A. **65**:390 (July 31) 1915, Note 41.

[15] Mellanby: Quart. J. Med. **9**:164, 1916.

Friends have pointed also to the work of Whipple on the proteose intoxication from closed loops of intestine. They have said, "How about that? There you have a toxin formed during stasis." If they had read the articles referred to they would have found that Whipple's work does not favor their theory. The toxin is not formed in the colon at all and very slowly in the lower ileum. Dogs with closed loops of ileum or colon may live long in perfect health. Moreover, the substance is not absorbed from the lumen of the intestine, but from the mucosa where it is formed.

The cure for all this is more reading, and particularly reading of the original articles. Many who now look up to Bouchard, Combe, Metchnikoff and Lane as great masters to be revered would be cured of their belief in "autotoxemia" if they would only read the hodgepodge books these men have written on the subject. Whenever I look into them I am reminded of the boy who had to write a composition on the horse. He began by remarking that the horse looks very much like the cow, and continued with a long description of the latter animal. Bouchard[12] rambles on about uremia, typhoid, diabetic coma, crude experiments to show the toxicity of urine, etc. Combe's carelessly written and pseudoscientific work[13] reveals a children's specialist who has become so used to ascribing the many symptoms of his little patients to the bacterial decomposition of food in their intestines that he cannot keep from looking at adults in the same way. We must remember that, as compared with the infant's digestive tract, the adult's is very much less sensitive in every way, and the mucosa apparently much less permeable to toxins and bacteria. Moreover, the acute upsets of the infant with diarrhea, vomiting, fever and rapid wasting are very different from the chronic constipation, headache and nervousness of the adult. Many of Combe's ideas as to autointoxication in infants may be correct, but he has no right to talk about babies in one breath and adults in the next, as if there were no difference between them. One must object, moreover, to his reliance on the old worthless experiments in which urine and feces from the supposed victims of "autointoxication" were injected into the veins of rabbits.

We know now that Metchnikoff[17] was wrong about his lactic acid bacilli, and that they do not even survive in the colon; much less do they replace other forms.[18] It seems likely from recent work that the earlier writers, with their imperfect cultural methods, fed one bacterium by mouth and recovered another closely related saprophyte from the stools.[19] Most of the patients who come to me with intestinal troubles have already been thoroughly dosed with fermented milk, and I cannot see that it does them much good. Occasionally it helps because of its laxative properties, or perhaps on account of the lactose which favors the growth of a nonproteolytic flora in the bowel.

Half of the space in Lane's book on intestinal stasis[20] is taken up with some old articles of his on bone and joint deformities. He believes that these things throw light on the formation of bands and membranes in the abdomen; but the recent findings of anatomists and embryologists are all against him. It appears now that these bands are not due to the sagging of overloaded colons or to chronic infection, but to congenital defects in the rotation of the bowel and in the cleavage of peritoneal layers.[21] They are just as common in fetuses and infants as in adults. We have learned that kinks are normal features of the bowel; that adhesions often do no harm, and that enteroptosis is normal and innocuous in a large proportion of men and women. Lane's operations have also been discredited. We know that an ileosigmoidostomy does more harm than good, and that the colon is not a useless organ that can easily be removed.

We see from all this that although there are many clinical facts which strongly suggest that poisons are absorbed from the digestive tract during constipation, we have as yet very little actual proof for this assumption. It is far easier to believe that toxins are absorbed in the presence of diarrhea, dysentery, typhoid or the gastro-enteritis of children. In some of these conditions, however, the toxic symptoms may be due not only to chemical substances, but also to the actual invasion of the mesenteric lymph nodes and blood by bacteria.[22] Schloss[23] has just shown also that the poisoning in children with vomiting and diarrhea is often uremic in nature. Dehydration leads to imperfect excretion and also to a rise in the nonprotein nitrogen of the blood.

SYMPTOMS NOT DUE TO TOXINS

I wish now to limit the discussion sharply to a certain type of case in which I can say confidently that the symptoms are not due to the absorption of any toxin. These are the people who come in complaining of a constipation which they feel sure is undermining their health and keeping them from a full use of their faculties. I am sure there is nothing imaginary about their symptoms, which certainly can be very annoying. The principal one is often a mental haziness, a "dopiness," or a feeling of having been drugged. In addition, they may have malaise, headache, spots before their eyes, a coated tongue and a poor appetite. Now, although I have already pointed to some of the things which make me slow to accept the doctrine of "autointoxication," there is one fact which alone would convince me that the symptoms complained of by these people are not due to the absorption of toxins. On being questioned, they practically all admit that these symptoms are relieved instantly by a bowel movement. My attention was drawn to this point years ago by a friend who worked in an adjoining office. He would often say to me, "It's no use; my brain is in a muddle; I am dizzy and my head aches so I cannot see; I will quit for the afternoon and go home." Ten minutes later he would return, perhaps whistling cheerfully, and would remark on the fact that an unhoped for bowel movement had promptly relieved him of his discomforts. I could go on to quote scores of such cases; cases which I am sure would convince any physiologic chemist that the symptoms were not due to circulating toxins. He would know that in that case relief would not follow immediately after removal of the source of the poison but later, when sufficient excretion had taken place to lower greatly the concentration of the substance already in the blood. We know that with normal kidneys a man will take two hours to get rid of perhaps 65 per cent. of a dose of phenolsulphonephthalein injected into his muscles. The layman appreciates this point best when he is reminded that after eating asparagus it takes him from twelve to fifteen hours to excrete most of the aromatic substance that is noticeable in the urine. A search through the literature shows that several men have commented on this sudden relief from symptoms and have recognized the impossibility of dragging in a chemical theory to explain them.[24]

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[16] Mutch: Quart. J. Med. **7**:448, 1914. Dale and Dixon: J. Physio. **39**:25, 1909.

[17] Metchnikoff: The Prolongation of Life, New York, 1908.

[18] Hull and Rettger: J. Bacteriol. **2**:47, 1917. Herter and Kendall: J. Biol. Chem. **5**:293, 1908. Einhorn, Wood and Züblin: Arch. f. Verdauungskr. **16**:300, 1910.

[19] Ráhe: J. Infect. Dis. **16**:210, 1915.

[20] Lane: The Operative Treatment of Chronic Intestinal Stasis, London, 1915.

[21] Harvey: Ann. Surg. **67**:641 (June) 1918. Flint: Bull. Johns Hopkins Hosp. **23**:302, 1912. Eisendrath and Schnoor: Ann. Surg. **60**:622, 1914.

[22] Alvarez: Surg., Gynec. & Obst. **26**:651 (June) 1918. Woolley: J. Lab. & Clin. Med. **1**:49, 1915.

[23] Schloss, O. M.: Intestinal Intoxication in Infants: The Importance of Impaired Renal Function, Am. J. Dis. Child. **15**:165 (March) 1918.

EFFECT OF DISTENTION OF THE LOWER BOWEL

But if these symptoms are not produced by toxins, what are they due to? I feel sure that they are caused by the mechanical distention and irritation of the lower bowel by the fecal masses. Perhaps the best proof of this assumption is to be found in the observation made by my friend Dr. Saxton T. Pope that in these people the classical symptoms of "autointoxication" can be produced by inserting a cotton tampon into the rectum. I have since observed the same thing with masses of barium and with cacao butter suppositories. One woman experimented on was so upset by the presence of a suppository in her rectum that she dug it out with the handle of a spoon. She often had to do the same with small fecal masses, which nearly drove her crazy. Years ago, Leube[25] found that the pressure of his finger in the rectum was sufficient to produce typical symptoms in some of his patients. Zimmermann[26] found also that the rectum is exceedingly sensitive to pressure. Changes of from 2 to 3 mm. of mercury were perceived, and a rise of from 20 to 60 mm. caused distress.

The trouble with these people who complain of "autointoxication" is that they are unduly sensitive and keenly aware of what is going on in their bodies. I often ask such women if they could do any mental work with a flea crawling on them. They generally answer, "Certainly not. I would have to stop everything and get rid of it." Similarly, I know business men who will drop everything at the office and rush home to take an enema. It is this sensitiveness which distinguishes these people from those who are not worried or upset when their bowels fail to move.

There should be no difficulty in accepting these views when we remember how profoundly sensory impulses from our digestive tracts can influence our emotions, our mental processes and our vasomotor balance. Thus the sleepiness and mental hebetude which worry the "autointoxicated" are experienced by many people after dinner. We do not ascribe that to the absorption of poisons. It may be due to the absorption of food, but some observations on a man with a jejunal fistula made me think that it may be due solely to the distention and the increased activity of the bowel. I was led to this conclusion by the fact that the man would go to sleep when the intestine was made to contract actively on a small balloon inserted through the fistula. We know too that active intestinal contractions can slow the pulse and sometimes produce sweating.[27] They seem also to have something to do with dreams and nightmares. Similarly, hunger with its powerful gastric contractions can put a stop to all mental work and can make the subject restless and irritable. Some people suffer from headache, dizziness and nausea which can be relieved instantly by the taking of food. Carlson has shown that these symptoms are intimately associated with the hunger contractions. When the contractions are taking place the knee-jerk is more active.[28] Dmitrenko[29] accelerated the respiration and pulse in dogs and raised their blood pressures by stimulating the stomach in various ways, as by distention with balloons.

The faintness, dizziness, pallor and cold sweats of nausea, sudden diarrhea and flatulent distention are all due to the vasomotor upsets observed by Carlson in his work. Any one who has ever given an anesthetic to a person with a full stomach must have marveled at the wonderful difference between the state of circulation and respiration before vomiting took place and afterward. I have been impressed at times by the great mental depression occasioned in some patients by the presence of a duodenal ulcer[30] or by a small fissure in the anus. Surgeons are well acquainted also with the tremendous respiratory reflex that follows dilatation of the anal ring.

We see, then, that particularly in sensitive people the brain is profoundly influenced by afferent impulses coming from a distended, overactive or wrongly acting bowel. The effects follow so closely on the appearance and disappearance of the stimulus that we cannot drag in a cumbersome and roundabout chemical mechanism to explain them; they must be produced directly through the nervous system.

As I have pointed out in another paper,[31] many of the symptoms of constipation are due simply to the plugging of the lower end of the canal, which slows or stops the downward current and often produces ripples of reverse peristalsis. The food cannot go downward, so the bowel tries to refuse it admittance or sends it back again. Thus, intelligent people have told me how the removal of the rectal plug has often given them immediate relief from regurgitation and belching. I believe that the distended and active colon sends off ripples which run up the bowel and break into deeper waves in the upper part of the stomach and esophagus. These waves can carry more than the usual amount of bile back into the stomach and up into the mouth and give rise to the term "biliousness." They account also for the lack of appetite and the feeling of fulness after eating a few mouthfuls. It has been shown that they deposit gastric and perhaps intestinal contents on the back of the tongue, and in that way give rise to the coat on that organ, the bad taste and the bad breath. The relief obtained by taking calomel is not due to any hypothetic action on the liver, but, I believe, to a restoration of the normal downward currents.

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[24] Hertz: Constipation and Allied Disorders, London, 1909, p. 164. Cabot: Differential Diagnosis, Ed. 3, **1**:35, 1915. Hewlett: Functional Pathology of Internal Diseases, 1916, p. 198. Roberts, Dudley, in Discussion on Chronic Constipation, abstr. J. A. M. A. **69**:1518 (Nov. 3) 1917.

[25] Leube: Deutsch. Arch. f. klin. Med. **36**:323, 1885.

[26] Zimmermann: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **20**:445, 1909.

[27] Mathieu: Colon Reaction Syndrome, Arch. d. mal. d. l'app. digestiv **7**:676, 1913.

[28] Carlson: Am. J. Physiol. **31**:318, 1913; **36**:169, 1915; **45**:144, 1918. Rogers: Ibid. **41**:555, 1916. Brunemeier and Carlson: Ibid. **36**:194, 1915.

[29] Dmitrenko: Inaug. Diss., Odessa, 1916, p. 312, quoted from Physiol. Abstr. **2**:30, 1917. Meltzer, New York M. J. **61**:749, 1895. Muns: Proc. Soc. f. Exper. Biol. and Med. **12**:87, 1915. Miller: Am. J. Physiol. **37**:240, 1915.

[30] Von Bergmann: Berl. klin. Wchnschr. **50**:2374, 1913. Westphal and Katsch: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **26**:391, 1913.

[31] Alvarez, W. C.: The Syndrome of Mild Reverse Peristal J. A. M. A. **69**:2018 (Dec. 15) 1917.

OTHER CAUSES OF SYMPTOMS

One must always make sure in any particular case that the symptoms complained of are really due to constipation and not to cardiovascular disease, tuberculosis or something else. A careful history often shows that overwork, worry and lack of sleep give rise to the symptoms and finally to the constipation. I have in another paper[32] given some of my reasons for believing that nervousness is generally the cause and not the result of constipation.

Although attacks of migraine, scintillating scotoma, dizziness, etc., may often be associated with constipation and sometimes warded off by purgation, many of my patients who have been induced to keep careful records have found that the attacks were really just as frequent when their bowels were well cleared or working normally. Many of them have discovered also that the spells are likely to come more frequently after periods of fatigue, excitement, worry and the loss of sleep. A number of these people have returned after months or years to tell me that the constipation was gone and the symptoms no better. Others remember that they had the symptoms during childhood when their bowels moved perfectly. It is significant that other members of the family often have the same symptoms without the constipation. Several years ago Franz[33] made a very careful metabolic study of a patient with migraine, and could find no change in the constituents of the blood during the attacks. He was forced to conclude that the disturbances arise in some part of the brain much as they do in epilepsy. I believe the gastro-intestinal upsets are secondary and comparable with those seen with brain tumors. In one of my patients attacks of petit mal sometimes take the place of his migrainous headaches. Some patients have been greatly helped by the removal of diseased appendixes. They still have the headaches, but these come less frequently and the gastro-intestinal symptoms are less marked.

In the worst of these cases of "autointoxication," the sufferers are undoubtedly psychopathic. I have learned to recognize the type at the first interview, and I no longer waste much time with them, as it is practically impossible to change their habits of thought. They are generally of neurotic or insane ancestry and often give a history of "nervous breakdowns" in the past. Nowadays they come in with a box full of roentgen-ray plates, and their estimate of the ability of the physician rises or falls with the number of kinks which he can discover in them. These people want to do all the talking, and arguments make no impression on them. Artful questioning will often elicit the fact that they have from one to six movements a day, but these are not large enough; they are not shaped properly and their expulsion does not leave the desired feeling of comfort and rectal emptiness. After great and prolonged exhortation, they may promise to leave their bowels alone for forty-eight hours, but when they return they admit that they became worried and thought there would be no harm in their taking some castor oil the first night, a dose of salts in the morning and several enemas along the way.

Some of my confrères maintain that this mental aberration is due to long-continued poisoning, but I cannot believe that when I learn that these people were hypochondriacs before they became constipated. Why can we not forget the colon and glands of internal secretion long enough to let the brain have a few diseases and hereditary defects all its own? Those of us who are not alienists seem to have the idea that all crazy people are plainly insane, and all locked up in asylums. Nothing is farther from the truth, and the gastro-enterologist must constantly be on the watch for borderline cases.

In chatting with medical friends it is interesting also to learn that the same individuals, when they do happen to get over their colonic phobias, show up at the oculist with floating spots, queer failures of accommodation, unbalanced external muscles, etc. They go to the genito-urinary man for sexual troubles and "lost manhood," and to the orthopedist with hysterical joints and weak backs. These people are unending sources of income to the enthusiasts in all specialties, to the unscrupulous, the reckless operators, the osteopaths and the quacks. The honest physician who admits his failure to find anything physically wrong is discredited and soon discharged, often without payment for his trouble.

TREATMENT

Some may say now, "Well, you admit the reality of the symptoms, you admit that they are often caused by constipation and that they can be relieved by clearing the bowel—what difference does it make whether they are ascribed to autointoxication or to nervous agencies?" My answer is that it makes a tremendous difference. In the first place, as scientific physicians, we must seek the truth; if the facts of the case support the mechanical and nervous theory and not the chemical one, we must follow the facts. In the second place, the new idea is invaluable when it comes to treatment. The old theory produces hypochondriacs; the new explanation may set them free. Only by coming to believe in it can they regard their colonic functions as unconcernedly as does the normal man, and that is the first step toward a cure.

A case showing clearly the harmful effects of the old teaching and the helpful effects of the new came to my attention about two years ago, when a prominent business man, a big, athletic fellow, told me this story:

> He had been perfectly healthy until six years before, when the fear of approaching baldness led him to consult a well-known dermatologist. The doctor told him that baldness was due sometimes to "autointoxication," and asked if he was constipated. He said he never had been, but this did not discourage the physician, who suggested that stasis might still be present and the bowel movements insufficient. This sounded plausible, so the patient began to take cathartics every day. Before long he was going from physician to physician in

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32. Alvarez: California State J. M. **14**:363, 1916.

33. Franz: The Physiological Study of a Case of Migraine, Am. J. Physiol. **19**:14, 1907.

search of stronger purgatives. He saw a prominent internist who found what he thought were pronounced abnormalities in the colon and gave a gloomy prognosis. Later he went to a well known surgeon, who promised to cure him by removing his appendix. There never had been any symptoms referable to that organ, put the patient was now desperate and ready for anything that might put a stop to an intoxication which he had been led to believe would sooner or later undermine his mental powers. The operation brought no relief, and the surgeon explained that there were so many Lane's kinks that only a colectomy would now offer any hope. It was in regard to the advisability of this procedure that he consulted me. I found him a nearly perfect specimen of humanity with as normal a digestive tract as one could wish to see. What stasis he had was in his rectum. Sunday morning when he didn't have to rush for his train, he generally had an unaided bowel movement, which was the main event in his week. I suggested that if he would leave his bowels alone he might go back again to the normal condition from whence he had started. After several hours of argument he agreed to my proposal. His bowels moved after three days of anxious waiting, and they have been moving satisfactorily ever since. His colon no longer dominates his mental processes, but has receded into the background where it belongs. He still feels the classic symptoms at times, but they do not bother him any more, because the element of fear is gone. Now that he knows that no harm is being done to his body, he is perfectly willing to leave his colon to its own devices. Many others who have been cured in the same way tell me that it was only this fear that made them act so foolishly about their bowels.

Such cures can be obtained only with intelligent, well-balanced people who can follow an argument, stick to a course of action and, if necessary, suffer a little discomfort before attaining their end. If after a thorough trial it appears that the bowels will not move spontaneously without occasioning too much distress, the patient may use liquid petrolatum, agar or stewed fruit. Many of these people have such irritable, spastic colons that they cannot be helped at all if they continue to use bran and other coarse foods. These substances upset digestion and lead to the formation of gas. If an extra stimulus is essential, as it seems to be in some people, I am sure it is preferable, unless the patient has the digestion of an ostrich, to give a mild chemical stimulus rather than a rough mechanical one. I cannot understand why some physicians warn their patients against enemas. It seems a shame to upset 24 feet of intestine with a purgative when the material to be removed is in the rectum or sigmoid within easy reach of a little water.

These "autointoxicated" people are often so anxious to find a royal road to recovery that they are ready to be operated on by any surgeon who will promise a prompt and complete cure. My experience has taught me to avoid operations on such patients even when the roentgen ray shows the presence of distinct abnormalities. They are so sensitive that the surgeon can hardly leave the abdomen in such perfect condition that they cannot continue to feel something.

SUMMARY

"Autointoxication" is commonly diagnosed when a physical examination would show other more definite causes for the symptoms. Those who believe that intestinal stasis can account for a long list of disease conditions have little proof to offer for their views. Many of the assumptions on which they rest their case have been proved to be wrong.

The usual symptoms of the constipated disappear so promptly after a bowel movement that they cannot be due to absorbed toxins. They must be produced mechanically by distention and irritation of the colon. They occur in nervous, sensitive people. It has been shown that various activities of the digestive tract can profoundly affect the sensorium and the vasomotor nerves. The old ideas of insidious poisoning lead to the formation of hypochondriacs: the new explanation helps to cure many of them.

177 Post Street.

COMPARATIVE RESULTS OBTAINED IN THE TREATMENT OF PULMONARY TUBERCULOSIS

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I. BY GRADUATED LABOR, AS EMPLOYED AT THE BROMPTON HOSPITAL SANATORIUM AT FRIMLEY, ENGLAND

The treatment of pulmonary tuberculosis by graduated labor has been systematically carried out at Frimley, England, for a number of years, and this method of treatment has had considerable influence on a number of lung specialists in this country. Dr. Marcus Paterson was in charge of the sanatorium at Frimley during the early years of its existence, and it is largely due to his work and writings that graduated labor has been used in England and America. Of the patients treated at Frimley, a great majority first passed through the wards of the Brompton Hospital in London, whence, if found suitable after a period of observation, they were drafted on to the sanatorium. They were not chosen at random; still less was every case of pulmonary tuberculosis at Brompton passed on in turn; on the contrary, the cases were carefully selected, only those patients being chosen who were free from fever or other constitutional symptoms, who possessed considerable vitality, and who had begun to show signs of improvement. So far as possible, also, patients with signs of limited disease were preferred, although it was soon found that patients with extensive disease, but of a quiescent type, often did remarkably well.

I was struck with two prominent facts while reading Paterson's book.[1] The first was that he paid more attention to the physical condition of his patient than he did to the foci of disease. He repeatedly emphasizes the fact that the physical condition is of much greater importance than an examination of the lungs. The second fact was the great importance he placed on the auto-inoculations that were obtained from exercise and work. These two facts are absolutely opposed to my interpretation of the modern method of treating pulmonary tuberculosis. In my judgment, a physical examination of the lungs is the only sure way that one can get a knowledge as to how the foci of disease are acting. It is a common occurrence to have patients consult us who are in good muscular physical condition and at work, and yet we find a slowly progressing disease. It is impossible to know how the disease is acting without a careful physical examination of the lungs. My principal object in treatment is to treat the foci of disease, but not to neglect but also treat the general physical condition. My chief aim is to change an open into a closed tuberculosis or an active into an inactive one. I believe that this is accomplished more surely and with better permanent results by rest than by graduated labor. I am quite aware that Paterson gave bed rest treatment to his patients with active disease, but when these cases became quiescent, he paid more attention to the physical condition than to the lung condition.

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[1] Paterson, Marcus: Auto-Inoculation in Pulmonary Tuberculosis, London, James Nisbet & Co., 1911.

The second fact that Paterson emphasized very strongly was the value of the auto-inoculations obtained from graduated labor. This is also absolutely opposed to my interpretation of the modern treatment of pulmonary tuberculosis. My aim is to avoid auto-inoculations in every way possible, and to get the foci of disease quiescent as quickly as possible. Auto-inoculations are the results of congestion of the foci in the lungs, and it is just these congestions which are extremely dangerous and which we should try to avoid. We have no known way of controlling auto-inoculations, and it is a well known fact that one severe overexertion will sometimes cause such a serious congestion of the disease as to produce a fatal result. It is my firm conviction that the attempt to treat pulmonary tuberculosis by means of auto-inoculations is extremely dangerous and absolutely contrary to the safe method of placing the foci of disease in a quiescent condition as quickly as possible and keeping them quiescent.

II. BY BED REST TREATMENT

Bed rest treatment has been carried out very successfully by Dr. Joseph H. Pratt[2] of Boston. His results were obtained in the homes of the sick poor in a supposedly unfavorable climate. Supervision was maintained by the class method. There was no selection of cases. In 36 per cent. the disease was far advanced when the rest treatment was begun. The average duration of bed rest treatment was about four months, and the duration of graduated exercise combined with bed rest from four to seven months, making the usual duration of treatment from eight to eleven months. A few patients were not allowed to take regular exercise for from one to two years. Strict obedience to the rules was required. In tabulating the results, Pratt included those who were dismissed because they did not follow the rest treatment faithfully, those who left the class voluntarily, and those who died while taking the treatment. Eighty-eight per cent. of those admitted in the first stage were well and working from one to ten years after their discharge, 62 per cent. of the second stage, and 20 per cent of the third.

TABLE 1.—EMMANUEL CHURCH TUBERCULOSIS CLASS: STAGE OF DISEASE AND CONDITION OF ALL CASES, FROM ONE TO TEN YEARS AFTER DISCHARGE, INCLUDING THOSE WHO DIED WHILE UNDER TREATMENT IN THE CLASS *

Stage	Total Number	Per Cent.	Condition, July, 1916			
			Well	Living	Dead	Per Cent. Well
I	67	35	59	2	6	88
II	55	29	34	2	19	62
III	69	36	14	9	46	20
Total	191	100	107	13	71	

* Seventy-six per cent. of the first and second stage patients were well. No first stage patients died in the class. All the cases were traced.

In the period of ten years ending in July, 1915, Pratt treated 191 patients. The condition of these patients from one to ten years after their discharge is given in Table 1.

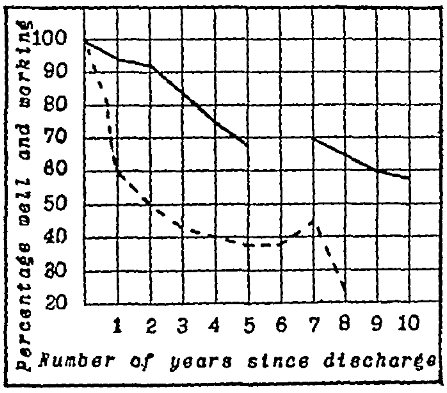
The cases selected for the comparison of the effect of prolonged bed rest with graduated work are those in which the wage-earning power had been restored while under treatment (Table 2 and chart). Many of the patients treated by Paterson at Frimley did five hours of hard labor a day before leaving the sanatorium without any apparent ill effect. After returning to work, a large number of them broke down within the first two years. The rapid drop in the percentage of patients well and working is well shown on the chart in the sharp and sudden drop from 100 per cent. at the beginning to 62 per cent. at the end of one year and 50 per cent. in two years. In Pratt's cases, there was a drop from 100 per cent. at the beginning to 95 per cent. at the end of one year and 92 per cent. at the end of two years. Pratt's figures show very clearly the important fact that strengthening a man's muscles and improving his general condition by graduated labor is not the best way to heal the tuberculosis foci in the lungs. His chart and tables clearly show that prolonged rest leads to permanent recovery in a large proportion of the cases treated.

TABLE 2.—AFTER-CONDITION OF PATIENTS WITH TUBERCLE BACILLI IN SPUTUM, DISCHARGED WITH WAGE-EARNING POWER RESTORED *

Number of Years after Discharge	Brompton Hospital Sanatorium; Treatment, Graduated Labor				Emmanuel Church Tuberculosis Class; Treatment, Prolonged Bed Rest		
	Total Number of Cases	Number of Cases Minus Those Lost Sight of	Number Working	Per Cent. Working	Total Number of Cases	Number Working	Per Cent. Working
1	1,051	965	593	61	42	40	95
2	1,051	868	434	50	39	36	92
3	741	581	265	46	39	34	87
4	475	341	153	44	38	29	76
5	292	209	81	39	34	24	71
6	150	96	40	42	32	22	69
7	39	22	5	23	30	21	70
8	....	...	...	..	20	14	70
9	....	...	...	..	14	9	64
10	....	...	...	..	8	4	50

* Of the Brompton patients, those lost sight of have been deducted in determining the percentage working. There were none lost sight of in the Emmanuel Church tuberculosis class.

At the end of one year, after discharge, there were 595, or 81 per cent., of the Brompton patients and forty, or 95 per cent., of the Pratt patients well and working. At the end of the seventh year, there were five, or 33 per cent., of the Brompton patients and twenty-one, or 70 per cent., of the Pratt patients well and working.



Patients with tubercle bacilli in sputum discharged with earning power restored; solid line, Emmanuel Church tuberculosis class; broken line, Brompton Hospital Sanatorium.

The results obtained by Pratt illustrate the great value of rest treatment over graduated labor. Pratt's figures also demonstrate another very important fact, namely, that patients who undergo prolonged and intensive rest treatment do not tend to relapse.

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[2] Pratt, J. H.: The Importance of Prolonged Bed Rest in the Treatment of Pulmonary Tuberculosis, Am. Rev. Tuberc. 1:637, 1918; The Class Method of Treating Consumption in the Homes of the Poor, J. A. M. A. 49:755 (Aug. 31) 1907.

It is the constant experience of most physicians who treat pulmonary tuberculosis at health resorts that the home treatment of the disease is most frequently extremely bad. As a rule, the specialist at the health resort is more skilled than the physician in the city in the treatment of this disease, and the routine of the open air treatment can be carried out much better in the sanatorium or health resort than at home. Pratt's results, however, show that he obtained results at home by his bed rest treatment which are superior to those obtained in the same climate at the Rutland Sanatorium[3] in Massachusetts, and at the Massachusetts State Sanatorium. His results are also equal to those obtained at the Trudeau Sanatorium at Saranac Lake, N. Y.,[4] and at the Laurentian Sanitarium at Ste. Agathe des Monts, P. Q., Canada.[5]

The patients at Rutland Sanatorium in Massachusetts were drawn from Boston and its suburbs and lived, when at home, under the same social and economic conditions as did Pratt's patients. Rutland Sanatorium, although limited to favorable cases, had less than 25 per cent. of its patients well and working from eight to ten years after their discharge, while 59 per cent. of Pratt's patients were well and working after this length of time.

Among a large series of patients from Boston and vicinity who were treated at the Massachusetts state sanatoriums, Miss Farmer[6] found that 24 per cent. were well from four to seven years after their discharge. Of Pratt's patients, there were 63 per cent. who were well from four to seven years after their discharge.

III. REST AND EXERCISE AS EMPLOYED BY MOST SANATORIUMS

I will now briefly compare the results obtained by graduated labor with those obtained by the modern rest and exercise treatment, as employed at most sanatoriums. For purposes of comparison, I will take two sanatoriums which use rest and exercise, but do not allow their patients any manual labor. The exercise consists of walking exercise practically entirely. These two sanatoriums are the Trudeau Sanatorium and the Laurentian Sanitarium. The class of patients admitted to these institutions is the same, and the methods of treatment are identical. Rest treatment is used very thoroughly where indicated, but not so intensively as employed by Pratt.

TABLE 3.—CONDITION OF ADIRONDACK COTTAGE SANITARIUM PATIENTS FROM ONE TO TEN YEARS AFTER DISCHARGE (1903-1916)

Stage	Number of Patients	Well	
		Number	Per Cent.
I.	719	515	72
II.	1,166	669	57
III.	44	11	25
Total	1,929	1,195	

By taking an average of the percentages for the seven years of the Frimley results, we find that 44 per cent. of the patients discharged during a period of from one to seven years were well and working. Table 3 shows that during the period of from one to ten years, the Adirondack Cottage Sanitarium (Trudeau Sanatorium) shows that 61 per cent. of patients were well and at work. Table 4 shows that 56 per cent. of the patients who were discharged from the Laurentian Sanitarium were well and working during a period of from one to nine years.

Here again we have convincing proof that rest treatment is much superior to graduated labor treatment.

TABLE 4.—CONDITION OF LAURENTIAN SANITARIUM PATIENTS

Of 558 patients who have been treated in the Laurentian Sanitarium for a period of thirty days or longer, since 1908, 529 have been traced, and are thus classified: *

	Number	Per Cent.
Living and leading active lives	295	55.76
Still invalided	101	19.65
Total living	399	75.4
Died	130	24.6
	529	100

* Twenty-nine patients could not be traced.

It still remains to compare the intensive bed rest treatment as employed by Pratt with the usual rest and exercise treatment. We see from Table 1 that Pratt had a total of 191 patients, and that of these 107, or 56 per cent., were well from one to ten years after discharge. The Adirondack Cottage Sanitarium (Trudeau Sanatorium) had a total of 1,929 (Table 3), and of these, 1,195, or 62 per cent., were well from one to ten years after discharge. The Laurentian Sanitarium (Table 4) had a total of 558 patients, and of these, 295, or 55.76 per cent., were well from one to nine years after discharge.

It is thus seen that the results obtained by the intensive bed rest treatment as employed by Pratt are practically the same as those obtained by the ordinary treatment of rest and exercise as employed at the Adirondack Cottage Sanitarium and at the Laurentian Sanitarium. A critical examination of Pratt's bed rest treatment and the usual rest treatment shows that the two methods are practically the same. Pratt employs bed rest treatment to all his patients, and the others employ it only when indicated. The difference is, therefore, only one of degree. The results are the same.

Causes of Declining Birth Rates.—It is now well recognized that the fall in the birth rate is due chiefly, if not entirely, to the volitional restriction of the size of the family, that is, to the adoption of birth control principles. There are good grounds for believing that among the thinking classes of the community a majority of married couples limit their families by one means or another. Moreover, there is evidence that among this class the average size of the "limited" family is larger rather than smaller than that of the "unlimited" family. The explanation of this apparent paradox is, of course, that those couples with naturally low fertility have no need for limitation, whereas those with naturally high fertility are the most likely to resort to it. I would suggest that the fall in the birth rate is due to a reduction in the number of large families rather than to any great increase in the number of small ones. I think it very doubtful whether any appreciable number of childless marriages are due to the practice of birth control.—C. Killick Millard, M.D., D.Sc., *Journal of State Medicine.*

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[3] Fourteenth Annual Report of the Trustees of the Massachusetts State Sanatorium at Rutland, Boston, 1911.

[4] Adirondack Cottage Sanitarium Report of 1916, Twelfth Medical Supplement, Saranac Lake, N. Y., 1917.

[5] Laurentian Society for the Treatment and Control of Tuberculosis, Ninth Annual Report, Ste. Agathe des Monts, P. Q., Canada, October, 1917.

[6] Farmer, Gertrude L.: Is Sanatorium Treatment Worth While? M. & S. J. **170**:411, 1914.

TWENTY-SIX CASES OF HYPERTROPHIC STENOSIS OF THE PYLORUS IN PRIVATE PRACTICE

WITH OPERATION BY THE RAMMSTEDT METHOD *

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During the past four years twenty-six of my private patients with pyloric stenosis have been operated on by the Rammstedt method. Twenty-four were operated on by Downes at the Babies' Hospital, one by Downes at St. Luke's and one by Jennings at the Brooklyn Hospital.

In the cases reported, seventeen were boys and nine were girls. The sex in my series of cases agrees with the observation of Still, who reported that among forty-two cases, thirty-five were males. Ibrahim found boys affected four times as often as girls.

Thirteen patients represented the first pregnancy, six the second, five the third, one the fourth and one the fifth. In one, a second pregnancy, the first-born also had pyloric stenosis and died after gastro-enterostomy. All were full-term infants.

The ages at the time of operation ranged from 3 to 16 weeks. Fourteen were 6 weeks old or less, four were under 4 weeks, eight were from 6 to 11 weeks, and five were from 11 to 16 weeks.

The lowest weight at operation was 4 pounds, 2 ounces; the birth weight was 5 pounds, 8 ounces. This patient made an uneventful recovery. A 10-pound child was operated on at the sixth week, then weighing 6 pounds, 4 ounces, a loss of 3 pounds, 12 ounces. This child recovered. An infant weighing 9 pounds, 2 ounces at birth began vomiting at the fourth week. After persistent vomiting for seven weeks he came under my observation. His weight was then 5 pounds, 11 ounces, a loss of 3 pounds, 7 ounces. He died from exhaustion, twenty-six hours after operation. Twelve had made a gain of from 3 ounces to 2 pounds before the onset of vomiting. Two held their birth weight. In the others the birth weight was not looked on as sufficiently accurate to be recorded. Six held or exceeded their birth weight at the time of operation. These patients, of course, had made a pronounced initial gain.

In a collective study of 266 cases by Ibrahim, there were no patients older than 8 weeks at the onset. In one of my patients, vomiting began at birth, eleven were 2 weeks old or under, twelve between 2 and 4 weeks, one was 6 weeks and one 8 weeks.

The onset was abrupt in all but one case.

Twenty-three patients were entirely breast fed at the onset of vomiting, and nine were entirely breast fed when they came under observation. In fourteen the nursing had been discontinued because the breast milk had been thought not to agree. Only two had been bottle-fed since birth.

The vomiting in all was projectile. Twenty-three had vomited after every feeding. In the others there was collective vomiting; two or three feedings were retained and then all vomited. There was no regurgitation or mouthful vomiting. All foods and fluids were vomited alike.

In twenty-four cases there was retention of food three hours or more after every feeding. In two this observation was not made.

The urine and stools were very scanty in all.

There was a steady loss in weight in all the patients after the onset of the vomiting.

There was no elevation of the temperature in any of the cases.

The infants were all very hungry.

The peristaltic stomach wave was present in every case. This is best obtained by washing the stomach and allowing 2 ounces of water to remain, or to give 2 ounces of food. If the patient is given a pacifier and he is then placed on his back with the light favorable for observation, the wave phenomena will shortly appear.

Tumor was palpable in all the cases but one. The tumor may best be palpated when the stomach is empty. In a few cases the tumor will be more readily felt when the stomach contains from 2 to 3 ounces of food. It is most frequently located above and to the right of the umbilicus, and is a small, oblong, movable mass.

In seventeen there was no postoperative vomiting. Nine vomited postoperatively, but all of these recovered. One vomited twenty-two times, and one nine times. Postoperative temperature above 101 was noted in seven. In one it was 104.8, and in one 103. All recovered.

REPORT OF FATAL CASES

Case 1.—An infant, aged 11 weeks, was greatly emaciated, had vomited for ten weeks, and had lost 3 pounds, 7 ounces from the greatest weight, which was 9 pounds, 2 ounces. The child died in collapse twenty-six hours after operation.

Case 2.—A boy, aged 9 weeks, had vomited for two weeks and was in fair condition. I advised immediate operation. This advice was not followed. Other physicians were consulted and he was treated palliatively for three weeks. He was then brought to me in wretched condition, having vomited in all five weeks, and having decreased in weight from 7 pounds, 8 ounces to 6 pounds, 9 ounces. He was operated on and died of exhaustion twenty-four hours after operation.

Case 3.—A boy, aged 7½ weeks, was greatly exhausted before operation, owing to prolonged starvation. He had vomited for four and a half weeks. His greatest weight was 8 pounds, 4 ounces, and his weight at operation 6 pounds, 15 ounces. He died in collapse five hours after operation.

Case 4.—A child, aged 3½ months, had vomited for ten weeks and had decreased in weight from 9 pounds, to 6 pounds, 6 ounces. In spite of prolonged intermittent vomiting, the child was in fairly good condition. I advised immediate operation but was persuaded by the family to take the patient under observation for a few days with a view to avoiding operation. The patient developed an acute gastro-intestinal infection, lost rapidly in weight and vitality, and in three days the operative risk had risen more than 50 per cent. The child died in collapse five hours after operation.

POSTOPERATIVE MANAGEMENT

According to the routine carried out at the Babies' Hospital, which has been evolved under the direction of Dr. L. Emmet Holt and Dr. W. L. Downes, the infant is wrapped in a warm blanket before leaving the operating room, and when in bed is surrounded by hot-water bottles outside the blanket. For an hour or two following operation the head of the bed is kept lowered to prevent the aspiration of mucus into the larynx. This is absolutely necessary while the infant is still under the influence of the anesthetic. When nourishment is commenced, the head of the bed is raised to a level position. Ten or twelve hours later the patient is placed in a semierect position, which tends

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* Read before the American Pediatric Association, Lenox, Mass., May 28, 1918.

to prevent regurgitation of food and permits the more easy escape of gas.

As soon as the patient is placed in bed, a hypodermoclysis of 120 c.c. of physiologic sodium chlorid solution is given, and if the condition is poor, a hypodermic of 5 minims of epinephrin, 1:1,000, is given and repeated in from four to five hours. Dilute whisky, 5 minims every three hours for the first five or six days, has proved of great value. Transfusion in a few cases of collapse has been of material benefit, from 80 to 120 c.c. of blood from either parent being given, preferably into the median basilic vein.

One and one-half hours after operation, provided the patient has sufficiently recovered from the anesthetic, 10 c.c. of water are given, and one and one-half hours later 4 c.c. of barley water and 4 c.c. of breast milk. Two hours later 8 c.c. of breast milk and 4 c.c. of barley water are given. Breast milk is then given every three hours, alternated with water, and gradually increased in amount so that at the end of forty-eight hours about 30 c.c. are given at a feeding, with 4 c.c. of barley water. The barley water is then discontinued, and on each successive day the amount of milk permitted is increased 5 c.c. at a feeding, so that by the eighth day following operation the patient is having 60 c.c. every three hours. On the third day the intervals of feeding at night are lengthened to four hours, so that seven feedings are given instead of eight. By the time the baby is taking 60 c.c. of breast milk at each feeding he may be put to the breast once. The baby is weighed before the nursing and at intervals of three minutes until he has nursed 60 c.c. from the breast. The following day three nursings are allowed, so that by the eleventh or twelfth day the patient is nursing entirely and is able to leave the hospital. Measurement of food during the nursing must be kept up one week later by carefully weighing both before and after. For one month or longer a wetnurse is advisable if the mother is not able to nurse her child.

In well-nourished infants, a sponge bath is given daily until the wound is completely healed. In emaciated children, an oil rub is preferable until such time as the tendency to subnormal temperature has passed.

In cases of vomiting due to accumulation of gas in the stomach, the child should be raised to an upright position after feeding. If this does not suffice, a soft rubber catheter may be passed into the stomach before each feeding. If still persistent, gastric lavage may be employed. One teaspoonful of castor oil is usually given twenty-four hours after operation if there have been no stools. There should be from two to three stools a day. If they are more frequent, protein milk is substituted for three or four breast feedings.

The wound is covered with a narrow fold of sterile gauze held in place by adhesive straps. It is not disturbed for four or five days unless some indication arises. The stitches are removed on the ninth or tenth day.

MORTALITY

A low mortality in these cases of pyloric stenosis depends on early diagnosis and immediate operation. The presence of a palpable tumor demands prompt surgical interference. The longer operation is delayed in a case with a well-marked tumor the greater the surgical risk. This does not mean that a child with a palpable tumor cannot recover without operation. I have had patients with palpable tumor recover and others that died without operation and after operation because of operative delay. Operation by the Rammstedt method (which means a rapid operation) will insure a mortality of about 5 per cent. in patients that have not vomited more than two weeks. The surgical risk that the patient offers depends in large measure on the duration of the vomiting. It is assumed, of course, that adequate after-care, which includes the use of breast milk, is supplied.

It will be observed that my four patients who died had vomited from four and a half to ten weeks.

A false security in these cases is assumed from the fact that the loss in weight is often temporarily arrested or perhaps has not been excessive. The cases reported above represent those in which operation was performed during the past four years and not all those that have come under observation, nor do they include those patients operated on or otherwise treated previous to 1914, when the results were not so brilliant. Cases treated by nonoperative methods will form the topic of a later communication. Sudden and unexpected death in the palliatively treated cases of pyloric stenosis is not uncommon. Acidosis,[1] due to defective urinary secretion with retention of acids, may explain these sudden deaths.

132 West Eighty-First Street.

CHRONIC PERICHOLECYSTITIS WITH MARKED GASTRIC SYMPTOMS

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The fact that inflammatory affections of the gallbladder, and stones in the gallbladder, are associated with gastric symptoms is sufficiently appreciated; but a series of cases recently seen in the New Haven Hospital has led me to doubt whether the association of marked and almost exclusively gastric symptoms due to inflammatory conditions about the gallbladder (with resultant adhesions in its neighborhood) has been sufficiently well recognized.

The complaints of the five patients here reported were almost entirely referred to the stomach, and they were of so severe a degree as to cause insistence in every case on operative intervention. In every case the freeing of the adhesions in the neighborhood of the gallbladder, and cholecystectomy, have resulted in prompt and complete relief.

It is certainly true that much has been said and written concerning abdominal adhesions that is not justified by wide experience in surgery for one often meets well marked adhesions in the abdomen that have caused no symptoms whatever, and on the other hand moderate adhesions that are so placed as to be responsible for a good deal of discomfort or suffering.

The type of adhesion which I have in mind in this paper and which was present in all the cases reported was not the light, veillike structure often encountered, but a thick, firm, extensive adhesion of the gallbladder to the stomach, to the liver, to the transverse colon and to the abdominal wall. Whether these adhesions represent a previous cholecystitis with stones, the stones having been meanwhile discharged, it is impossible to say. A study of the onset as given in the histories does not indicate that this is always the case. In Case 1, for example, there had been no attack to suggest gallstones in the gallbladder at any time. Gradually, the only symptom complained of ("feeling as though there were a lump in the stomach") made its appearance and persisted for a year and a half. In Case 3 there had been for three years a dull, gnawing pain in the pit of the stomach. This pain suggested rather the pain of an ulcer and was relieved by eating; but at operation no sign of ulcer was found, though it is true that the cystic duct was adherent to the surrounding tissues. In Case 5, the pain had been unusually severe, usually localized in the epigastrium but occasionally radiating to the back and shoulder. In a word, the character of the pain varied from a gastric distress to the pain characteristic of ulcer or of stone in the gallbladder, but at the time of operation neither of these conditions was found, except that in Case 2 the gallbladder contained one large stone. In this case the intensive adhesion of the gallbladder to the transverse colon was such a marked feature that I have included it in the series, though it is possible that the case was simply one of cholelithiasis, and that the adhesions had little to do with the clinical picture.

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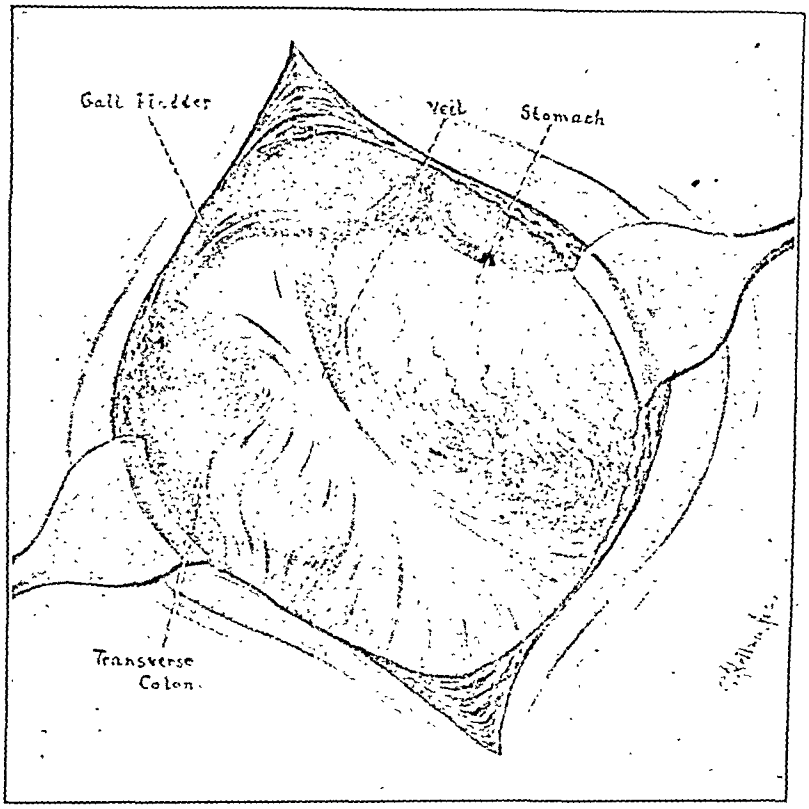
[1] Schloss, O. M.: Intestinal Intoxication in Infants, Am. J. Dis. Child. **15**:165 (March) 1918.

The importance of this class of cases consists in impressing on us that in patients in whom clinical examination does not reveal signs of gastric ulcer and in whom the physical examination for gallstones is negative, a clinical picture of pain in the upper quadrant or in the stomach region associated with eructations of gas may be entirely due to a marked inflammation about the gallbladder leading to its adhesion to surrounding viscera. It is interesting to notice that in one of the cases, Case 4, blood was found in gastric contents by the benzidin test. In all these cases a cholecystectomy gave prompt and complete relief, and this, of course, is the operation that should be done. Indeed, if this clinical picture represents the late results of a previous cholelithiasis, it is another argument for doing a cholecystectomy when gallstones are found in the gallbladder, and this is the operation which should, I believe, always be done. It is an operation that is much more difficult to do after a gallbladder has been drained, as I have recently had occasion to experience, having performed a cholecystectomy on a patient on whom a cholecystostomy for gallstones had been done some years previously. In this patient the gallbladder was tightly adherent to the pylorus and by these adhesions had been drawn backward toward the posterior peritoneal wall so that it had to be very carefully dissected away from the neighborhood of the vena cava, and in cutting its cystic duct the greatest possible care had to be used so as not to injure the common duct. This is a point to which recent writers have called frequent attention, but it is a point that cannot be too much stressed in discussing cholecystectomy. There is no excuse for injury of the common duct in dividing the cystic duct, if the cystic duct is thoroughly freed before it is clamped. If this is not done, however, the variations in the anatomic relations of the cystic and common duct, and the changes in its position due to adhesions, will frequently lead to inclusion of the common duct in the clamp which grasps the cystic duct and therefore to injury of the former.



Veil of firm adhesions found in Case 1.

I do not think it can be said that the clinical symptoms associated with adhesive pericholecystitis are characteristic enough to make us sure of a diagnosis of adhesions about the gallbladder. The study of these cases does not reveal any characteristic symptom or syndrome, but it becomes increasingly evident that symptoms referable to the right upper quadrant should, in all cases in which positive diagnosis cannot be established, lead to an exploration; for, aside from the well-known fact that both cholelithiasis and gastric ulcer may be overlooked if routine explorations of this kind are not made, it is also true that cases of the sort here reported, which in their milder form might well be classed as gastric neurasthenia, would go unrelieved unless explored and the adherent gallbladder excised. No results could be more gratifying than the complete relief afforded these wretched patients.

REPORT OF CASES

Case 1.—*History.*—M. A., woman, aged 40, for about one year had had a feeling "as though there were a lump in the stomach." There had been no actual pain, but the distress from the lump had been present constantly and had made life almost unendurable, so much so that she insisted on operative exploration. There had been no evidence of gastric obstruction, though she had noticed that she vomited whenever tea or coffee was taken with the meals. When these were omitted there was no vomiting. The previous history was unimportant.

Gastric analysis revealed: fasting contents, 30 c.c.; free acid, 40; total acid, 60; microscopic and benzidin, negative. Test meal, 100 c.c.; free acid, 20; total acid, 60; microscopic and benzidin, negative.

The symptom as to the lump in the stomach, which was the *only feature of the disease, was not* connected with any cause which the patient could determine, and bore no relation to food or to hunger. It was associated with nausea, but there was no vomiting. The symptoms were worst in the morning, and the patient never had any appetite for breakfast. She was a nervous woman, but there was no hypertrophy of the thyroid or sign of exophthalmic goiter.

The roentgen-ray examination threw no definite light on the case. An exploration was advised, but no assurance could be given that relief would be obtained.

Operation and Result.—When the peritoneal cavity was opened, a sheet of strong adhesions extending from the under surface of the right lobe of the liver spread downward in fan-shaped fashion, enveloping the gallbladder, to the stomach, transverse colon and hepatic flexure, and backward, encroaching on the foramen of Winslow. The gallbladder was slightly larger than normal but otherwise unchanged, and contained no stones. The appearance of the veil is shown in the accompanying illustration. The veil was divided so as to free all the viscera involved and the gallbladder was dissected free and removed.

There was complete relief of symptoms, and the patient left the hospital cured, able to eat well, and entirely free from distress.

Case 2.—*History.*—D. B., woman, aged 43, for three weeks had complained of severe pain in the stomach with eructations of gas. The pain was not related to meals and was constant. It was dull and gnawing in character and had made life so miserable that operation was insisted on. There was no jaundice nor history of jaundice. The abdominal examination revealed some tenderness in the region of the gallbladder and just under the left costal margin. The patient would not relax the rectus muscle, and examination was difficult; but it was my impression that a mass was felt in the region of the gallbladder.

Roentgen-ray examination indicated a probable ulcer of the first portion of the duodenum; marked adhesions in the terminal pyloric portion with partial obstruction of the duodenum, and cecal adhesions.

Operation and Result.—The gallbladder was thickened, somewhat enlarged, adherent to the transverse colon, and pulled well over to the right side by adhesions. It contained one large stone. The appendix was surrounded by adhesions. Cholecystectomy and appendectomy were performed.

The convalescence was somewhat prolonged by a mild infection of the operative wound, but relief from symptoms was complete.

Case 3.—*History.*—S. S., man, aged 34, for three years had complained of a dull gnawing in the pit of the stomach. This was relieved by eating, but returned an hour and a half after food was taken. There was occasional nausea, but there had been no vomiting. There had been a good deal of gaseous eructations. There was no jaundice. The patient had lost about 15 pounds in weight and had become less vigorous and energetic. The family and previous history was unimportant. The typical hunger pain with brief relief on the taking of food was to be especially noticed. Abdominal examination was negative except for tenderness in McBurney's region. The roentgenologic findings indicated adhesions in the regions of the terminal pylorus, interfering with the emptyings of the stomach.

Operation and Result.—The gallbladder was adherent to the stomach and the cystic duct to the tissues around it by fresh adhesions. There were no stones nor ulcers. The appendix was long, thick, and slightly reddened. Cholecystectomy and appendectomy were performed.

The relief from the operation was prompt and complete, and the patient left the hospital entirely cured and eating in normal fashion.

Case 4.—*History.*—L. M., man, aged 66, for two months had complained of pain in the epigastrium which came on one hour after eating and lasted for two or three hours. The pain was relieved by drinking hot milk. He did not vomit. There had been no tarry stools, but he had lost 20 pounds in two months. Two years before he had a similar attack which lasted one month.

Abdominal examination revealed tenderness and resistance in the epigastrium, beginning under the left costal margin and running to about the middle of the right rectus muscle.

Gastric analysis revealed blood microscopically by the benzidin test. In examination of the fasting contents, 30 c.c. were obtained, with a total acidity of 42. Free hydrochloric acid was 22. In a test meal, 120 c.c. were obtained, with a total acidity of 65, and free hydrochloric acid, 30.

Roentgen-ray examination indicated a growth in the pyloric portion outside the stomach proper, producing pressure on the pylorus, and a diagnosis was made by Dr. Honeij of marked adhesions in that region also involving the hepatic flexure and transverse colon.

Operation and Result.—The gallbladder was densely adherent to the liver, hepatic flexure, transverse colon and duodenum. There were no stones in the gallbladder. The appendix was quite long and covered with adhesions, its tip lightly adherent to the under surface of the liver. Cholecystectomy and appendectomy were performed.

The severe gastric symptoms which before operation had made life miserable were entirely relieved, and the patient left the hospital a normal man.

Case 5.—*History.*—M. M., woman, aged 49, for seven months had had severe pain in the epigastrium, part of the time localized to this region, part of the time radiating to the back and shoulder. She had vomited occasionally, never any blood. There had been no jaundice. She had lost 20 pounds in three months, and had been greatly troubled by gaseous eructations and by nearly constant nausea. There had been no relation between the pain and the taking of food.

Operation and Result.—At operation a general visceroptosis was found, excluding the kidneys; but the chief lesion consisted in firm adhesions of the gallbladder to the duodenum, of the stomach to the colon, of the parietal peritoneum to the ileum. The stomach and duodenum were carefully explored for ulcers and none found. There were no stones in the gallbladder. The gallbladder and the appendix, possibly previously inflamed, though at present showing no changes, were removed.

The symptoms were entirely relieved by the operation, and the patient left the hospital feeling perfectly well and eating normally.

GAUCHER TYPE OF SPLENOMEGALY

REPORT OF A CASE

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AND

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CHICAGO

Among the numerous conditions that are included under the general term of Banti's disease, there is one group of cases with definite clinical and pathologic characteristics. We refer to that known as the Gaucher type, first described by Gaucher in 1882. Brill and Mandlebaum,[1] in an exhaustive study, say:

> The characteristic features of Gaucher's disease are its incidence in childhood, its frequent presence in other members of the family of the same generation, a progressive increase in the size of the spleen, which often reaches colossal dimensions, followed by a similar huge enlargement of the liver, a characteristic brownish-yellow discoloration of the skin, usually restricted to the face, neck and hands, a peculiar yellowish, wedge-shaped thickening of the conjunctiva, commonly seen on both sides of the cornea, and the prolonged and chronic course of the disease, which does not materially disturb the health of the individual. After the disease has been present for a considerable time, there is a definite tendency to hemorrhages, especially appearing as epistaxis, bleeding from the gums, and ecchymoses in the skin following the slightest trauma. The positive finding in the blood, even in the early stage of the disease, is a definite leukopenia. The erythrocytes, however, show no definite change either in number, form, size or hemoglobin content until the disease has existed for a long time, when an anemia of the chlorotic type makes its appearance. The anemia is rarely pronounced at any stage. The disease is not accompanied by palpable enlargement of the superficial lymph nodes. There is no

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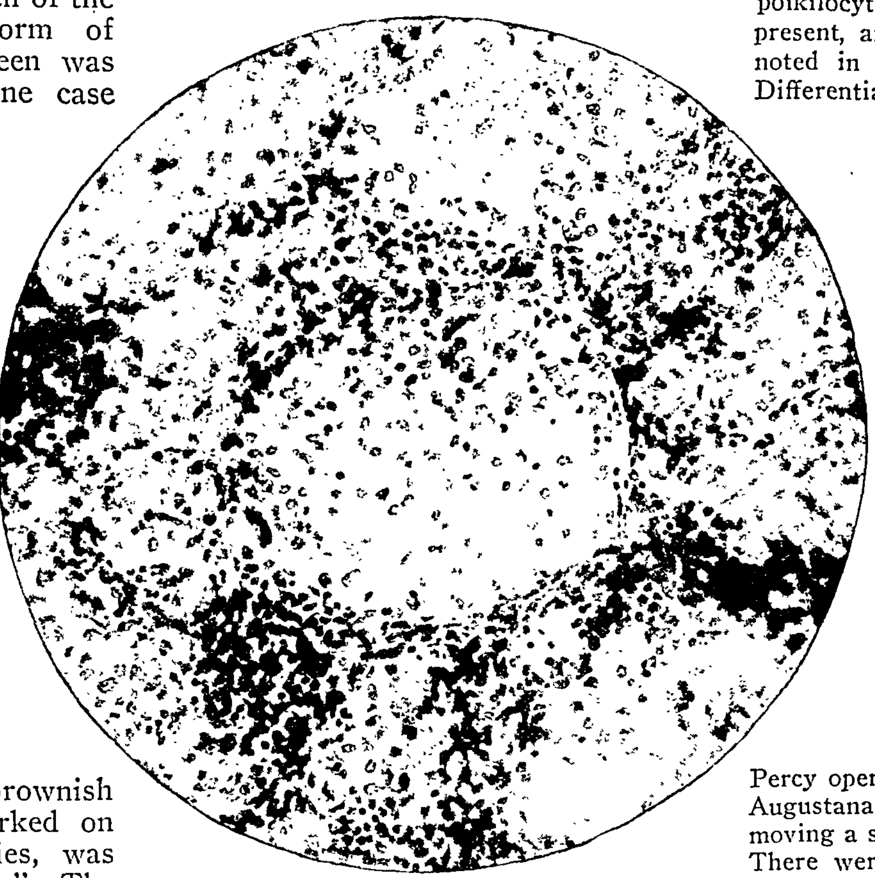
[1] Brill, N. E., and Mandlebaum, F. S.: Am. J. Med. Sc. **146**:863, 1913.

jaundice, and ascites is exceptional. The disease has none of the characteristics of malignancy, and usually is terminated by some intercurrent affection.

The pathological feature of the disease is the presence in the spleen, liver, lymph nodes and bone marrow of distinctive large cells, with characteristic cytoplasm and small nuclei. The enlargement of the spleen and liver is due to the presence of these cells in enormous number. In well-established cases, all of these organs contain pigment giving the reaction for iron. Whereas the nature and origin of these cells are still moot questions, the histological picture is uniformly characteristic and pertains to no other form of disease.

In 1916, Knox, Wahl and Schmeisser[2] reported two cases, and collected all of the instances recorded to that time, sixteen in number; the oldest patient was 44 years of age; only three of the patients were males. "The onset of the disease is insidious, the symptoms being vague and indefinite. A feeling of weight accompanying the enlargement of the abdomen was usually present." Eleven of the patients had some form of hemorrhages. The spleen was greatly enlarged, in one case weighing 8,100 gm. "Enlargement of the liver was noted in fourteen cases. It was not so marked as that of the spleen and seemed to occur at a somewhat later period. . . . The superficial lymph glands were moderately enlarged in ten instances, and in three additional cases, certain internal groups of lymph glands were enlarged." In one of the cases reported by these authors, the diagnosis was confirmed during life by the examination of an excised lymph node. "A yellowish or brownish discoloration, most marked on the face and extremities, was noted in eleven cases." The importance in diagnosis of the "wedge-shaped thickening of the conjunctiva," mentioned by Brill and Mandlebaum, has not been determined in the opinion of Knox, Wahl and Schmeisser. The blood picture, the familial history and the final termination are as stated by Brill and Mandlebaum. In one case, a white cell count of 500 was noted. Splenectomy was performed in nine cases. "Three of the patients died shortly after the operation. Only one was reported living after sixteen months. In most of these the sense of *weight in the* abdomen had been relieved, but there is no evidence that the further progress of the disease was arrested."



Section of spleen, × 200, in Gaucher type of splenomegaly, with large irregular spaces, representing the greatly dilated venous sinuses, filled with the peculiar large cells and nuclei relatively small, sometimes single and sometimes multiple.

REPORT OF CASE

P. W., man, aged 46 years, Polish, an insurance solicitor, unmarried, who first entered Cook County Hospital in November, 1915, had known since childhood of a tumor in the side of the abdomen. Attention was first directed to when he was 9 years of age. The tumor gradually increased in size, though the patient's general health was always good. The tumor produced neither pain nor tenderness, but at the time of entrance to the hospital, the patient was suffering from difficulty of respiration, which was sufficiently severe to prevent the discharge of his daily work.

The patient was very emaciated, and yellowish looking. Examination was generally negative except so far as it concerned the emaciation, the abdominal findings and the blood. There was no general adenopathy. The heart was normal except for a soft systolic blowing murmur, heard at the base. The abdominal tumor was determined to be the spleen. It extended to within 5 cm. of the symphysis pubis, and beyond the median line to 5 cm. to the right of the umbilicus. It was hard, smooth and not tender. The liver was palpable 10 cm. below the costal arch. The lower extremities were moderately swollen. Blood examination revealed: hemoglobin, 35 per cent.; erythrocytes, 2,240,000; leukocytes 3,200. A second count was practically the same, the leukocytes, however, being only 2,100. There was no increased fragility of the red cells; poikilocytes and microcytes were present, and three normoblasts were noted in one of two examinations. Differential white count revealed: small mononuclears, 17; large mononuclears, 12; polymorphonuclears, 68; eosinophils, 1; transitionals, 1; myelocytes, 1.

There was no history of previous illness, other than this one. Venereal disease was denied. Family history was negative. Coffee and tobacco were used to excess. Alcohol was used in moderation. The Wassermann test was negative. The diagnosis of Banti's disease was made, and the case was regarded as probably of the Gaucher type. Operation was suggested but refused, and the patient left the hospital.

In May, 1916, Dr. N. M. Percy operated on the patient at the Augustana Hospital, Chicago, removing a spleen 11 pounds in weight. There were firm adhesions between the upper pole and under surface of the diaphragm. The liver showed a fatty and atrophic cirrhosis. Transfusion was done, 600 c.c. each time, before the operation and on the day following. On the day after the operation the blood count revealed: hemoglobin, 70 per cent.; erythrocytes, 6,150,000; leukocytes, 2,900; differential white count: polymorphonuclears, 86, no abnormal red cells. Four days later, the hemoglobin was 70 per cent.; erythrocytes, 5,350,000; leukocytes, 1,920. On section the spleen showed large irregular alveolar spaces, representing the greatly dilated venous sinuses, filled with the peculiar large cells with nuclei relatively small, some*times single*, sometimes multiple, characteristic of the Gaucher type of splenomegaly. An iron-containing pigment was found between the connective tissue fibers of the trabeculae. The patient made an uneventful recovery and left the hospital in three weeks.

Jan he patient again entered Cook County Hospital,
and or six months he had been losing weight.
g nocturnal headaches; swelling and sore-
ıad been present for six weeks; bleeding
n as an oozing two weeks before admis-
stead orse. Some of the teeth were

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[2] Knox, Wahl and Schmeisser: Bull. Johns Hopkins Hosp. 1916.

loosened and the breath was fetid. The history was suggestive of insufficient nourishment. The blood test revealed: hemoglobin, 85 per cent.; erythrocytes, 3,950,000; leukocytes, 9,000; differential white count: small mononuclears, 28; large mononuclears, 13; polymorphonuclears, 54; eosinophils, 2; transitionals, 3. Erythrocytes were normal in appearance. On an antiscorbutic diet, the patient improved rapidly and was discharged, March 3, 1918, feeling well. All of the abnormal physical findings recorded at the time of entrance had disappeared. Repeated white counts made during his stay in the hospital revealed from 8,600 to 9,200 leukocytes. On the day of his discharge, the blood test revealed: hemoglobin, 90 per cent.; erythrocytes, 4,750,000; leukocytes, 8,600; differential white count: small mononuclears, 27; large mononuclears, 11; polymorphonuclears, 61; transitionals, 1.

SUMMARY

1. This case presented the clinical features regarded as characteristic of Gaucher's type of splenomegaly.
2. No case in which the patient was as old as this *man has as yet been reported.*
3. The patient was seen twenty-one months after splenectomy (the longest time elapsing since operation yet reported), and the blood findings were approximately normal.
4. There was no diminution in the size of the liver as a result of the operation.

A CASE OF CONGENITAL RADIO-ULNAR SYNOSTEOSIS

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Congenital synostosis of the upper ends of the radius and ulna is a rather rare condition. In this deformity there is an osseous fusion of the upper ends of these bones. Feidt[1] has reported two cases occurring in mother and daughter, and Kurlander[2] has reported a case of unilateral radio-ulnar synosteosis in an 8-year-old boy who gave no hereditary history. These are the only cases reported in American literature, and Feidt has collected about forty instances in the entire literature. Most of the cases showed a strong tendency to follow certain laws of heredity. This was present in Feidt's cases, mother and daughter being affected, with a history of the condition in the grandfather.

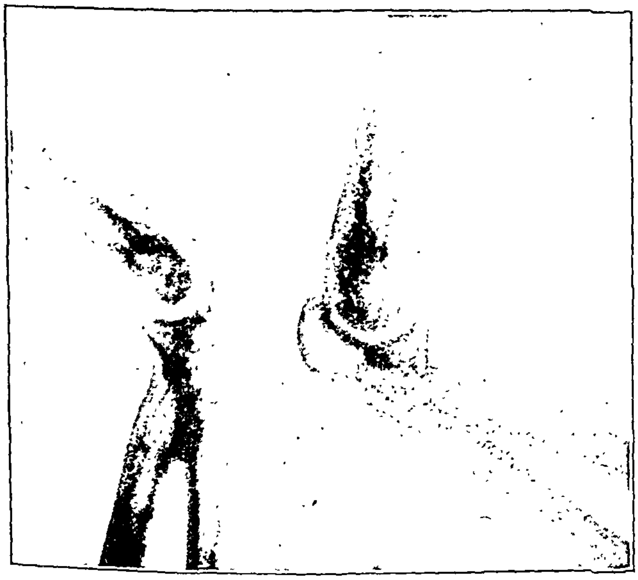

Fig. 1.—Synosteosis: lateral view.

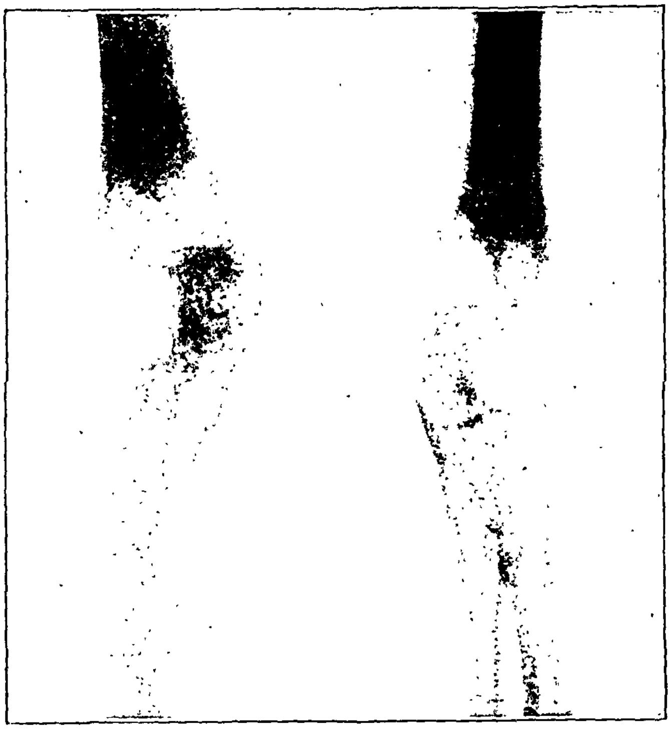

Fig. 2.—Synosteosis: anteroposterior view.

In this deformity the function of supination of the forearm is lost. There is no satisfactory treatment. In a case reported by Dawson,[3] the patient was operated on five times with fairly good results, with a restoration of the function of supination.

The case that I report is identical in its features with those reported by Feidt. There was no hereditary tendency discovered in my case.

REPORT OF CASE

A man, aged 22, colored, a native of Louisiana, seen at the Embarkation Hospital, Newport News, Va., had been a hotel porter previous to his induction into military service. He had never been able to rotate his forearms. Both hands were held in semipronation. Flexion at the elbows was normal; extension was not quite maximal. The wrist movements were normal. There was inability to supinate the forearms, any attempt at supination bringing into action the muscles of the arm and shoulder. Incidentally this patient presented a chronic arthritis of the left knee with a positive Wassermann reaction. The roentgenograms of both forearms, taken by Lieut. Ralph H. Boice, show intimate bony union of the upper 6 centimeters of the radius and ulna, both forearms showing identical involvement. The patient was discharged from the Army.

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[1] Feidt: Surg., Gynec. & Obst. **24**:696-700 (June) 1917.

[2] Kurlander: Surg., Gynec. & Obst. **25**:472, 1917.

[3] Dawson: Brit. M. J. **2**:833, 1912.

Indications for Transfusion.—The most reliable index of the need for transfusion in those suffering from acute anemia is the persistently lowered systolic blood pressure *true whether there has been actual hemorrh* there exists the capillary stasis (potential anemia) peculiar to shock.—*Review of Medicine.*

Clinical Notes, Suggestions, and New Instruments

A CASE OF ACUTE METHYL SALICYLATE POISONING

Jacob Rosenbloom, M.D., Ph.D., and James R. Johnston, M.D., Pittsburgh

A search of the literature reveals that cases of poisoning by methyl salicylate are very rare. Nerthney[1] reported a fatal case of poisoning. Juvet[2] described a case resulting fatally after the taking of one-half ounce of oil of wintergreen, and Gallaher[3] reported a case with recovery following ingestion of the same amount of oil of wintergreen. Pinkham[4] reported a case in which the patient died in fifteen hours after taking 1 ounce of oil of wintergreen as an abortifacient. It produced sweating, abdominal pain, purging, frequent and painful urination, convulsions, loss of sight and hearing, and death in coma. Necropsy disclosed the presence of gastritis and congestion of the kidneys. Hamilton[5] reported a case with recovery following ingestion of one-half ounce of the oil. The patient was dizzy, drowsy, delirious, went into coma, and developed a hemiparesis and salivation and a permanent disturbance of vision. Mann and Brend[6] report a case in which 3 drams of the oil killed a boy, aged 3 years, with convulsions as the most marked symptoms.

REPORT OF CASE

Miss B., aged 40, schoolteacher, at 9:30 p. m., March 28, 1918, took 1 ounce of oil of wintergreen, thinking that it was liquid petrolatum. Twenty minutes later she went to bed. Immediately after lying down she experienced a burning sensation in the abdomen and extreme nausea. She vomited, and the vomitus consisted of oil of wintergreen. Immediately following the vomiting diarrhea occurred, and the stools burned in passage. She washed her stomach by drinking water and took a glass of milk. The vomiting and diarrhea continued.

About half an hour after she had taken the oil, tinnitus aurium began. She felt that she needed air, and went to the front porch. She was examined two and one-half hours after taking the oil. The pulse was 120 and weak. There was a marked odor of oil of wintergreen throughout the house.

Castor oil, 2 ounces, liquid petrolatum, 1 ounce, and olive oil, 1 ounce, were given every second hour. Proctocysis was done with glucose, 10 per cent., and sodium bicarbonate, 5 per cent.

The following day the pulse was 110 and weak. The systolic blood pressure was 100, the diastolic not obtainable. The urine, 20 ounces, contained a heavy ring of albumin and a few hyaline and granular casts, and gave a strong salicylate reaction with ferric chlorid. The patient had extreme nausea, and vomited repeatedly. She had a sensation of things being far away. The tinnitus still persisted. She was given 1 pint of salt solution by hypodermoclysis in addition to the previous treatment instituted.

The third day the pulse was 80 and weak. The extreme nausea and vomiting continued. The temperature and respiration were normal.

The fourth day the temperature was 101.5, the pulse 80 and the systolic blood pressure 120. The patient was restless, excited and very nervous. The nausea and vomiting continued. Twelve ounces of blood were withdrawn and 1 pint of salt solution given intravenously. The treatment was continued with the addition of cocain, one-sixth grain by mouth, before food, and an alkaline drink was given by mouth.

The fifth day the temperature was 100 and the pulse 80. Nausea and vomiting were still present. A bad taste was present in the mouth. The urine volume was 900 c.c., with one part of albumin to the liter. Acetone and diacetic acid were present in large amounts. Salicylate was present in the urine.

The sixth day the nausea and vomiting had stopped. The temperature was 99.4 and the pulse 80. All food tasted sweet. The urine volume was 520 c.c. with one-fourth part albumin to the liter. Acetone and diacetic acid were present in large quantities. Salicylate was absent.

The seventh day the temperature was normal and the patient's condition normal except for fatigue and a sensation of her head falling into space. She had to wash her mouth constantly to keep soap bubbles out that would form. The urine showed 1.3 parts of albumin to the liter, and gave positive reactions for acetone and diacetic acid. Salicylate was absent. From this time on the patient's condition was normal. The acetone and diacetic acid disappeared on the twelfth day of her illness and the albumin on the seventeenth day.

Jenkins Arcade.

TREATMENT OF A SEVERE CASE OF EPIDEMIC MENINGITIS BY COMBINED INTRAVENOUS AND INTRASPINAL INJECTIONS OF ANTIMENINGOCOCCUS SERUM

Archibald L. Hoyne, M.D., Harry S. Arkin, M.D., and M. J. Sherman, M.D., Chicago
Attending Physician and Resident Physicians, Respectively, Cook County Hospital

We report this case because of the rapidity with which the symptoms cleared up under the combined method of treatment:

Harry T., aged 18, entered the Cook County Hospital, Aug. 25, 1918, in a state of delirium, with the history that, forty-eight hours previously, he had developed a severe headache followed by projectile vomiting and fever, and had been irrational for twenty-four hours.

Physical examination revealed marked rigidity of the neck with retraction of the head, opisthotonos, eyes deviating to the right, all reflexes exaggerated, positive Kernig and Brudzinski signs, rectal temperature 102.8, and pulse, 90. He was very restless and delirious, and it required several assistants plus partial ether anesthesia to do a spinal puncture. The fluid, 30 c.c. of which was withdrawn, was highly turbid, under increased pressure, with a cell count of 21,200 per cubic millimeter. Smears showed numerous intracellular and extracellular gram-negative diplococci. Ross-Jones and Nonne globulin tests were positive. Thirty c.c. of serum were given intraspinally.

On the following day the patient's condition showed no improvement. Forty-five c.c. of spinal fluid were withdrawn. The fluid was still very turbid with a cell count of 16,400 per cubic millimeter. Thirty c.c. of serum were given intraspinally and 45 c.c. intravenously.

Twenty-four hours later the temperature had fallen to 100 and the general condition was somewhat improved. Thirty-five c.c. of spinal fluid, less turbid than before, were obtained by puncture, and the cell count was now 1,000 per cubic millimeter. Twenty c.c. of serum were given intraspinally and 70 c.c. intravenously.

On the fourth day his condition was much improved. The spinal fluid (30 c.c. were withdrawn) was only faintly turbid with slight increase of pressure, and cell count of 450 per cubic millimeter. Fifteen c.c. of serum were given intraspinally.

On the following day—the sixth day from onset—spinal puncture revealed a clear fluid with a cell count of only 60 per cubic millimeter. Smears showed no organisms.

No further injections of serum were made, and on September 7, fifteen days after entering the hospital, the patient was discharged with complete recovery.

The total amount of serum given was 115 c.c. intravenously and 95 c.c. intraspinally.

There was no reaction following any of the intravenous injections of serum. This may be attributed to the fact that the patient had already been sensitized by the first intraspinal injection, which was given twenty-four hours before the administration of the serum by the intravenous method, and the fact that the first few cubic centimeters were injected very slowly.

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[1] Nerthney, quoted by Sollmann, Torald: Manual of Pharmacology, 1917, p. 504.

[2] Juvet: Méd. Gaz. **8**: 380, 1868.

[3] Gallaher: Philadelphia Med. Exam. **8**: 47, 1852.

[4] Pinkham: Tr. Massachusetts Med. Leg. Soc. **1**: 379, 1887; Boston M. & S. J. **117**: 549, 1888.

[5] Hamilton: New York M. J. **21**: 602, 1875.

[6] Mann and Brend: Forensic Medicine and Toxicology, 1914, p. 685.

Another point to be emphasized is the great need of judgment in determining the amount of serum to give intraspinally. We believe it imperative to drain the spinal canal as frequently as the case demands, but not to give serum on each occasion a puncture is made. Through irritation of the meninges by superfluous serum a turbid fluid with high cell count may result. We feel there is no doubt that in many instances the clinical symptoms of epidemic meningitis are prolonged by the continual injection of serum intraspinally far in excess of the amount required to obtain a cure.

OBSCURE INFLAMMATIONS OF THE CAUDA EQUINA: REPORT OF CASE AND OPERATION

Cecil E. Reynolds, M.D., D.P.H., Los Angeles

In 1914, Kennedy, Elsberg and Lambert[1] reported five cases of a peculiar undescribed disease of the nerves of the cauda equina. In this series they demonstrated not only the great benefit to be derived from operation, but also much of the pathology of the disease.

As I have had occasion to operate recently in a case that closely resembled Case 4 in the foregoing series, an account of it may add something to the study of the subject.

REPORT OF CASE

History.—A. G. R., man, aged 48, until five years before I saw him lived in Mexico. His father and sister died of tuberculosis. He had never had any serious illness except "stomach trouble" five years before, which lasted about a month, and the backache which preceded his present illness. This backache appeared eight years before. The first attack lasted two months, but on removing from Guadalajara to Vera Cruz he was immune for a year. At the end of that time he came to Los Angeles, and the backache returned in attacks every month until October, 1917, when the pain became continuous and was now associated with a sensation of numbness over the front of the right thigh. In March, 1918, after one remission, the numbness extended to the right ankle and sole of the foot, and there was a painful weakness of the arch when walking. March 10, he noticed numbness on the inner side of the left shin. Until March 10 he had been able to work and walk without a stick, but, after a series of osteopathic manipulations, which at times were very painful, he developed a sensation of a tight band around both Poupart's ligaments, and also around the knee and ankle on the right side. He used a stick until April 1, when he was compelled to stop work, and on May 1 collapsed entirely and had to be carried.

Examination.—Dr. Alfred Fellows saw him, May 5, and called me in, May 6. The patient was pale, thin, sallow and nervous in appearance. He was seated in an easy chair, but could not raise either foot from the ground. He could raise the right heel slightly. There was an almost complete flaccid paralysis of both lower limbs. Marked foot-drop had evidently existed for quite a while on the right side, as complete passive dorsiflexion was impossible beyond a right angle. There was complete absence of both knee jerks and also of both plantar reflexes. The feet were swollen, purplish and cold, especially the right foot. There was considerable atrophy of the muscles of both legs and both thighs. There was anesthesia over the dorsum of the right ankle and right sole, but elsewhere very little alteration of sensation except a marked saddle anesthesia (above) on both sides of the anus and inner aspects of the buttocks and to a lesser extent of the scrotum. There was no dissociation. Areas of hyperesthesia were noted on the right leg and foot. The abdominal reflexes were present; the cremasteric reflexes were slight. The bulbocavernosus reflex was absent. Above the waist line there were no special physical signs.

At this examination the patient complained of severe and continuous pains in the lumbar region and down the right leg (the outer side especially) and less severe in the left leg. Also there had been difficulty of micturition for the past two weeks, and constipation for years. Cramps in the legs and "electric shocks" were also complained of in the legs. He denied syphilis. The Wassermann test was negative, both as to blood and spinal fluid.

May 8, there was complete retention of urine.

Operation and Result.—May 9, operation was performed in the California Hospital. The roentgenograms being quite negative, I removed the arches of the eleventh and twelfth dorsal and first and second lumbar vertebrae. The epidural fat was very scant. On exposure, the dura mater was seen to be dark and swollen and to have spontaneously ruptured. A vertical slit was present through which the congested cauda endeavored to extrude. A light tampon was placed above the swelling between the dura and the bone, and the dura freely opened. The dura was smooth on its inner aspect.

The following condition was found: The posterior roots on the left side appeared nearly normal, but those of the right side were inextricably imbedded in a purplish mass of what seemed to be inflammatory material, molding itself into a smooth tumor-like substance closely applied to the lateral wall of the spinal canal as one traced it forward as far as possible without causing further trauma to the nerve tissues. It extended all the way around to the front of the right cauda, and I have no doubt from the symptoms that it also involved the left anterior roots; but it seemed so probable that an attempt to unravel the adhesions in that confused mass might forever damage the bladder mechanism, and thus abolish the chances of natural resolution that I decided to search no farther for the boundaries of the mass or even for the conus above it, and contented myself with thorough irrigation with mercuric chlorid 1 : 1,000, and as it was impossible to close the dura, I stitched the muscles carefully together over the cauda after removing the tampon. Very little cerebrospinal fluid escaped. The dura was left wide open to insure full decompression. A little fluid escaped next day, but none thereafter.

Immediate relief from pain followed the operation and has continued to the present. The bladder acted normally for a week after operation, when the patient had an attack of acute retention, and required catheterization for two weeks, since which time he has passed urine normally. The muscular power has steadily increased so that now he can walk well with one stick, and up and down stairs. He contemplates returning to work next month. Slight saddle anesthesia is still present. Both knee jerks are present, the left more than the right. The left plantar reflex is present, the right absent. The left leg is carried normally in walking, but the right is rather high-stepping. Right foot-drop is still present. The left ankle movements are strong in all directions. Both thighs can be powerfully flexed on the abdomen. The heel and toe pointing test is good, but better on the left. Sensation everywhere is normal, even on the right foot, excepting only the slight saddle hypesthesia and a very slight band sensation in the region of the right knee. Swelling and blueness of the feet have disappeared. Sexual desire and the power of erection have returned. Both legs are considerably more muscular, and the patient has gained in weight and improved in color. His tongue has still the thick coat of gray fur that it has carried for years. The dorsum of the right foot is now slightly hyperesthetic. The bulbocavernosus reflex is absent. Lasegue's sign is positive on both sides, but more on the right.

Medicinal Treatment.—Since the operation, hexamethylenamin and potassium iodid were given on alternate days for the first seven weeks, after which the potassium iodid was alternated with an iron, arsenic and strychnin mixture.

Securing a Workable Amount of Function in a Disabled Limb.—It is easy to overlook the importance of training a limb to perform its function more or less regardless of anatomic perfection. It is easy to overlook the fact that, if one joint is defective, other associated joints will make good the deficiency. An illustration of an actual case may be of service. A man with both forearm bones broken has cross-union interfering with pronation and supination. Now the greatest and most powerful movements of pronation and supination take place by means of internal and external rotation of the shoulder joint; therefore, proceed to cultivate that substitute.—Col. H. E. Deane, Gymnastic Treatment for Joint and Muscle Disabilities.

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[1] Kennedy, Foster; Elsberg, C. A., and Lambert, C. I.: Am. J. M. Sc. **147**: 645, 1914.

MISPLACED KIDNEY: REPORT OF A CASE

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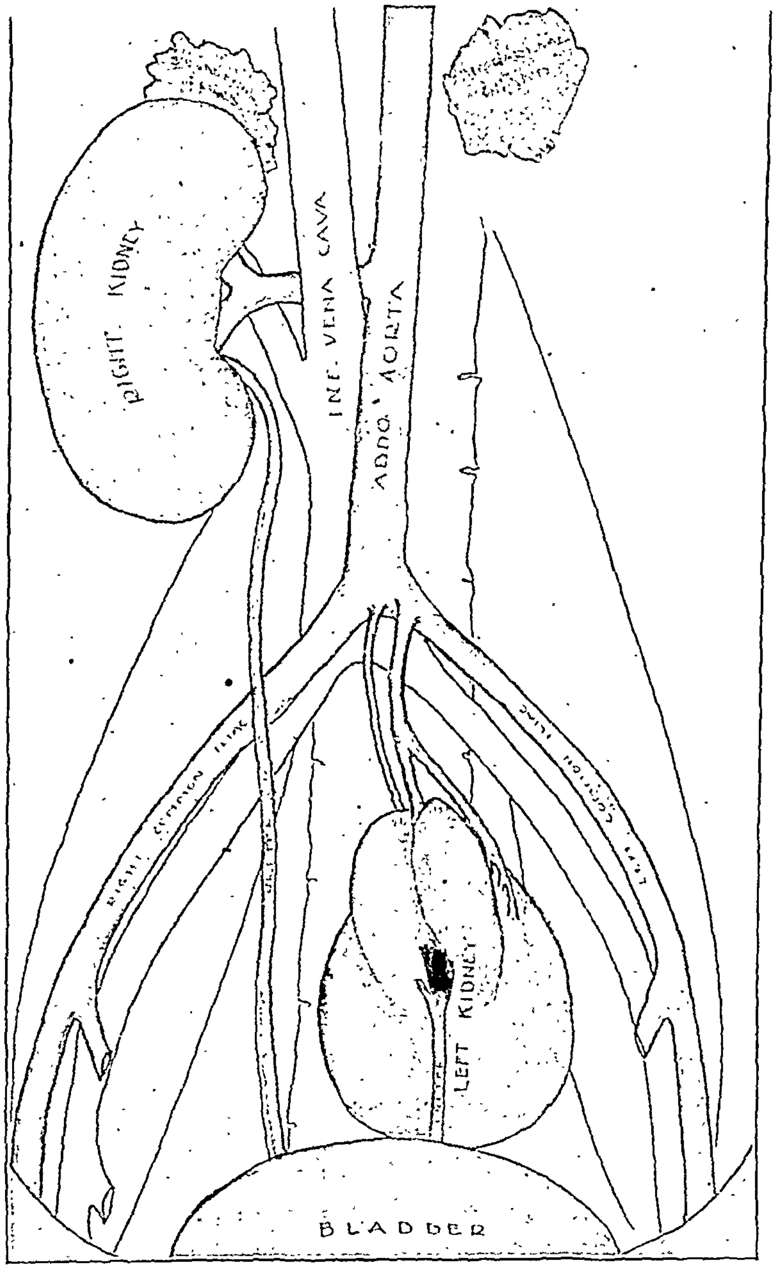
In a necropsy on the body of G. W., a well developed adult male negro, height 5 feet, 11 inches, weight, 170 pounds, who had died of lobar pneumonia, an anomaly in the location, shape and blood supply of the left kidney was observed. The kidney could not be found by feeling in the left renal fossa. After careful dissection the left suprarenal gland, somewhat larger than normal, was located in the usual position. The right kidney and suprarenal gland were in the normal position and had a normal blood supply. The gastro-intestinal tract was removed and the left kidney found inside the bony pelvis slightly to the left side. It was retroperitoneal, as would be expected. The kidney was somewhat pear-shaped, with the small end pointing upward. Its blood supply consisted of a main artery branching from the left common iliac and a smaller branch from the bifurcation of the abdominal aorta. Both arteries entered the anterior surface near the upper end. The veins, two in number, left the kidney on the posterior surface at the upper and lower ends, respectively, and emptied into the left iliac vein. The ureter, which was 9 cm. in length, left the anterior surface of the kidney and passed behind the peritoneum into the bladder in the usual location. The bladder, when distended, partially covered the kidney. The two kidneys, the ureters, the aorta and the bladder were dissected out and removed together. The diagrammatic drawing illustrates the condition clearly.



Location, shape and blood supply (diagrammatic) of misplaced kidney.

Military Medicine and Surgery

INFLUENZA AS SEEN AT THE PUGET SOUND NAVY YARD

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NAVY YARD, PUGET SOUND, WASH.

In the present state of our knowledge of this disease, one is tempted to ask, "When is influenza not influenza, and why?" Are we dealing with a definite disease caused by a specific micro-organism? If so, is that organism the influenza bacillus? Is it a hemolytic streptococcus? Is it an aberrant form of the pneumococcus (streptopneumococcus)? Is it a combination of two or more of these, and if so, is infection with the different organisms simultaneous or does the streptococcus follow the influenza bacillus as a secondary invader? May still other organisms than these cause the disease? Are there two or more separate diseases that are being confused both clinically and bacteriologically, and may they coexist in the same patient? May a group of human beings (camp, city or community) be attacked by this epidemic disease and some of them suffer from one infecting organism and some from another and still others from combinations? Are the pathogenic streptococci really a large family that can change form and affinity (for human tissues) and run up and down the scale of virulence ad lib.?

One of us (Lloyd) observed in 1915, 1916 and 1917 that hemolytic streptococci, fatal to rabbits in pure culture (intravenously), could usually be found in certain types of influenza. In one instance he obtained such an organism from the blood (before death) of a patient who had severe cholecystitis, for which operation was performed. The patient recovered, returned home, and became suddenly ill with fever, collapse, signs of pulmonary edema, and intense jaundice. The patient died twenty-one days after operation, and forty-eight hours after the last illness began. It is interesting to note in this connection that in some of the fatal cases of influenza at this station there was marked jaundice.

Nickson also found hemolytic streptococci in the blood of two persons suffering from influenza (bronchopneumonia) previous to his assignment to this station.

Based on previous observations, Lloyd suggested that we would probably find a hemolytic streptococcus the cause of this disease should influenza present itself among our personnel in epidemic form, and also expressed the opinion that a vaccine made from such an organism might be useful as a prophylactic. All of us felt that the influenza bacillus should be added if found. To Drs. Hitchcock and Nickson were assigned the tasks of making the pathologic and bacteriologic studies, following out a more or less definite plan on which all were agreed.

In boldly announcing the fact that this work was undertaken with what might be termed "preconceived ideas" on the part of at least two of us, it might be argued that we were looking for a streptococcus infection. We were; but we were also looking for anything else we could find. Nothing else was found in the blood, nor did we find anything else in the tissues at the necropsies; and a reasonable, though not a persistent, effort was made to obtain the influenza bacillus from the sputum without success. Never did blood cultures show anything but diplococcal or streptococcal forms; only once did tissue cultures show anything else, and that was when they were contaminated by the colon bacillus. Lieutenant Henry reports that in a few cases studied by him at the Seattle training camp he obtained only diplococcal forms, which he regards as pneumococci.

CLINICAL DATA

The onset is sudden. The patient usually has a chill or chilly sensations. There may be headache, and pain in the back; and there is a tendency for the knees to give way. There may be nosebleed. The temperature rises rapidly and may reach 104 or 105. In two fatal cases a temperature of 108 was recorded. The pulse is from 100 to 120, and higher in severe cases. Lung symptoms soon make their appearance with pain over the lungs, usually the lower border. Constipation is the rule, and the patient frequently complains of pain over the upper abdomen.

Examination of the lungs in moderately severe cases shows fine and coarse râles and areas of dulness. The liver and spleen are enlarged and tender. The respiratory rate averages from 28 to 30 and, though higher in very severe cases, there is not the rapid rate seen in ordinary lobar pneumonia. The cough is usually loose, and an abundant frothy, greenish fluid, pink with blood, is brought up. The contrast between this material and that usually seen in lobar pneumonia is quite marked. In severe and fatal cases delirium is present, the facial expression is anxious, and there is often marked cyanosis. In many fatal cases the respiration continued for some time after the heart had stopped.

CLINICAL PATHOLOGY AND PATHOLOGIC ANATOMY

Of sixty-two urinary examinations made fairly early, twenty-six showed albumin and hyaline and granular casts; seven showed albumin only, and twenty-nine were normal.

Of seventy-five blood examinations, twenty-five gave a leukocyte count of 5,000 or less, thirty-four gave a count of between 5,000 and 10,000 and sixteen a count of more than 10,000. Several cases gave a count of from 30,000 to 56,000; but in these cases there was some complication, usually cerebrospinal. In convalescent cases the leukocyte count tends to rise.

Necropsies were performed in thirty-nine cases, only six of which showed varying degrees of consolidation, sometimes complete for some portion of the lung. There was marked engorgement of the lung tissue with a large amount of bloody fluid exuding from the cut surface; not infrequently the cut surface of certain areas showed small amounts of pus in the smaller bronchi. Pleural effusions, varying in amount, usually right sided, serofibrinous, and occasionally purulent, were fairly constant. The heart was slightly enlarged and the right auricle dilated. The kidneys were enlarged and congested, an edematous condition frequently being found about the suprarenals. The spleen was large and soft, the cut surface exuding bloody fluid.

BACTERIOLOGIC FINDINGS

Sputum examinations were made in forty-nine early cases and twenty-five late cases with these results: Smears were made from selected portions. Gram positive cocci were found in pairs and chains, streptococci predominating throughout all examinations. Portions of sputum washed, plated on blood agar and incubated for twenty-four hours showed large numbers of hemolyzing colonies composed (microscopically) of chain-forming cocci (sometimes paired). Subcultures of these in bouillon, with one exception, showed chain formations. Two rabbits were injected intravenously with small amounts of washed sputum, suspended in broth. These animals died after thirty-six and seventy-two hours. Pure cultures of hemolytic chain-forming cocci were obtained from the heart's blood and from the pus from the joints, in both animals.[1]

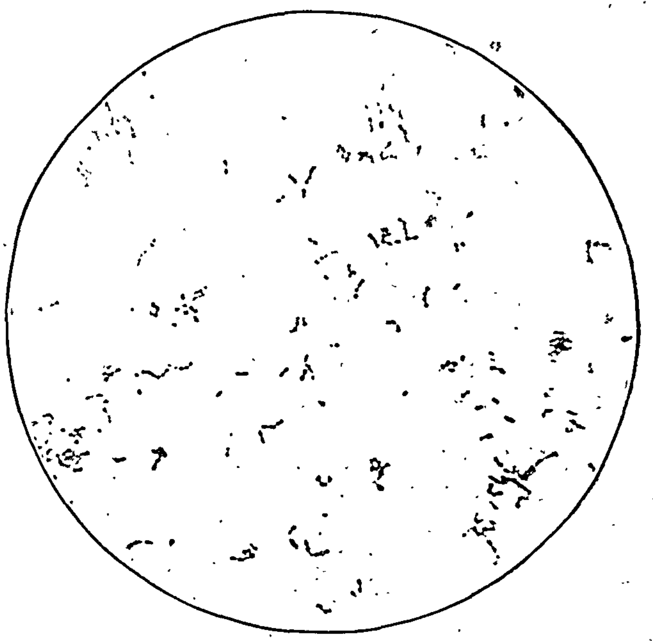

Fig. 1.—Smear direct from pus from joint of rabbit inoculated from washed sputum, × 1,000, showing streptococci.

Cultures made postmortem in twenty cases gave hemolytic streptococci from the heart's blood 17 times; from the pericardium, 12 times; from the liver, 13 times; lung, 14 times; spleen, 5 times; kidney, 17 times; bile, twice. In only one case the cultures were entirely negative. It is believed that this was due to an error in technic. In one case, cultures were contaminated with the colon bacillus.

A total of fifty-two attempts at blood culture on living patients gave twenty-four positive results, all streptococci except one, which gave only a diplococcus, which would not chain. This patient had the physical signs of lobar pneumonia and was clinically fairly typical of that disease; but five members of his family had "influenza" at the same time that he had "pneumonia," all being in the emergency hospital together (civilians). Two patients yielded blood cultures eighteen hours after onset, eight within three days and one after three weeks' illness.

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[1] Since this was written, one rabbit was killed three weeks after inoculation. It was greatly emaciated; pus from joints was somewhat caseated but showed streptococci.

The technic of blood cultures was as follows: Three c.c. of blood were drawn under aseptic precautions and placed in an Erlenmeyer flask containing 30 c.c. of 1 per cent. glucose broth plus 1 per cent. of sheep serum. After incubating for twenty-four hours there was usually an abundant growth.

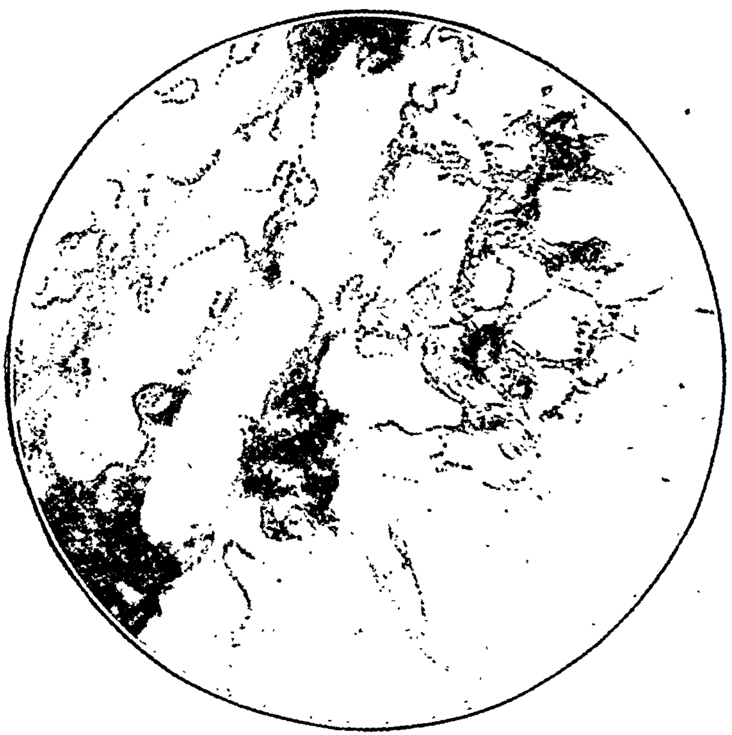

Fig. 2.—Marked chain formation in bouillon culture (twenty-four hours) made direct from human blood from patient who recovered; × 1,000.

CULTURAL AND STAINING CHARACTERISTICS, AND REACTIONS

On tubed solid mediums the organism we are describing grows in small, discrete colonies. On blood agar plates the colonies are usually larger, and when recently from the human body are surrounded by a well marked hemolytic zone. Hemolytic properties are quickly lost in subcultures, but may be restored by passage through rabbits or white mice. The microscopic appearance in smears from human and animal tissues is that of a coccus, occurring in short or long chains; once a diplococcus only was obtained from a blood culture. In the mouse the organism may show as mixed diplococci and streptococci. On agar the growth may also show mixed diplococci and streptococci, or there may be chains of diplococci, and after a few generations bouillon cultures may show diplococci predominating and even groups suggesting staphylococci, though when grown in bouillon direct from human and animal tissues, chain formation is the rule, the units in the chains varying in number from four to twenty. Some strains retained their chain-forming properties much more persistently than others. The size of the organisms varied from 0.3 to 1 micron; they were usually true spheres, but occasionally were somewhat elongated. The development of the organism in broth produces diffuse cloudiness accompanied by varying amounts of sediment. Acid was produced in glucose and lactose 4.6 and 2.1 degrees respectively (phenolphthalein). No gas was produced. The organism is gram-positive and stains readily with the ordinary anilin dyes. A capsule was demonstrated in only one strain from the peritoneal cavity of a mouse. In addition to the hemolytic property noted on blood agar plates, it was found that when 0.5 c.c. of a twenty-four-hour broth culture was mixed with the same amount of a 5 per cent. suspension of red blood cells (rabbit) in physiologic sodium chlorid solution and incubated at 37 C. for one hour, the cells were completely hemolyzed. This was also true of a strain that grew as a diplococcus.

BILE SOLUBILITY

A twenty-four-hour broth culture was filtered through gauze and cotton to remove sediment and large clumps. The filtrate was then centrifuged in Hopkins tubes, the liquid pipetted off and just enough salt solution added to the precipitated organisms to make a distinctly cloudy suspension. Two-tenths c.c. of fresh sterile ox bile was added to 1 c.c. of this suspension and incubated at 37 C. for one hour. Solution of the organisms did not occur. It will be recalled that the organism was obtained direct from the bile at two necropsies.

AGGLUTINATION AND PRECIPITIN REACTIONS

The organism did not agglutinate in Types I, II and III antipneumococcic serum nor in serum from convalescent patients.

A precipitin reaction was obtained in a 1:25 dilution in Type I serum and in a 1:50 dilution in Type III serum. Similar reactions were thus obtained in serums of persons ill of the disease: 1:25, one; 1:50, two; 1:800, one. No others were tried.

PATHOGENICITY FOR MICE AND RABBITS

Injections of 1 c.c. of a twenty-four-hour broth culture into the ear veins of rabbits invariably killed the animals in from eighteen to seventy-two hours. A marked and constant lesion in these animals was a purulent arthritis affecting the larger joints particularly the midjoints of the limbs (corresponding to the elbows and knees). The organism could be demonstrated in great numbers in the tissues and particularly in the pus from the joints, always in chains. Five-tenths c.c. of a twenty-four-hour broth culture invaria-

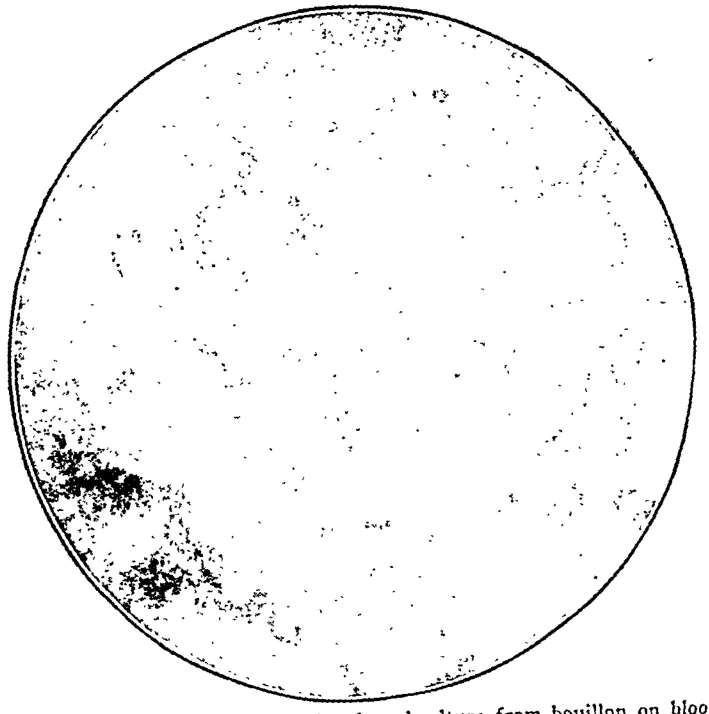

Fig. 3.—Marked chain formation in subculture from bouillon on blood agar plate; × 1,200.

bly proved fatal when injected intraperitoneally into white mice, death occurring in from twelve to twenty-four hours. Smears from the peritoneal fluid showed usually chains, occasionally pairs only, and sometimes both. Cultures made from this fluid, in bouillon, rarely failed to show marked chain formation, even though smears from the fluid showed only diplococci.

TECHNIC OF PREPARATION OF VACCINE

(*a*) Mixed virulent strains of hemolytic streptococci obtained as related are grown for twenty-four hours in 1 per cent. glucose broth plus 1 per cent. sheep serum.

(*b*) At the end of twenty-four hours the supernatant liquid is poured off from the sediment.

(*c*) The organisms from the supernatant fluid are thrown down in a centrifuge.

(*d*) The sediment left in the culture flasks is filtered through gauze and cotton and centrifuged.

(*e*) The two portions of solid micro-organisms are mixed, enough 0.8 per cent. salt solution plus 0.25 per cent. phenol being added to make a heavy suspension. Care should be taken not to add too much salt solution at this stage.

(*f*) The suspension is placed in a sterile bottle with beads and it is shaken to break the clumps.

(*g*) It is filtered again through gauze and cotton.

(*h*) It is filtered again through an alendem filter crucible at 15 pounds pressure; this does not remove the organisms.

(*i*) A small quantity of the filtrate is taken as it comes from the alendem crucible, and by means of a Hopkins tube the number of organisms per cubic centimeter is estimated.

(*j*) Salt solution (plus phenol) is added to make a dilution of 250 million organisms per cubic centimeter.

(*k*) This is tubed, capped and immersed in a water bath for one hour at 56 C.

(*l*) Each tube is tested by planting 3 or 4 drops on blood agar and incubating for twenty-four hours.

The dose used here is 0.25, 0.5 and 1 c.c., given at forty-eight-hour intervals.

INCIDENCE IN VACCINATED AND UNVACCINATED PERSONNEL

Influenza was introduced at the Puget Sound Navy Yard by a draft of men (987 in number) from Philadelphia, many of whom arrived ill or came down within a few hours after reaching this station. A tabulated statement of cases and deaths in the different units is given herewith.

It is fair to say that no unit was divided into two parts for the purpose of running experimental subjects and controls side by side. Circumstances were such that this could not well be done. It is also fair to say that in our largest unit (seamen's barracks) many cases had already occurred before vaccination could be done; we do not know how many. This is also true of the Philadelphia unit. It is not true of the rest of the command.

Conditions of exposure were not materially different in the different units. Conditions of housing differed in that some men were in barracks and some in tents; but this seemed to make no difference with regard to incidence. All of the marines were in barracks, rather closely quartered. All of the Seattle training camp men were in tents, two men to a tent (8 by 10).

The following facts stand out prominently:

Of 4,212 men who were vaccinated, not one man died. Among 111 Filipinos isolated and vaccinated early and later exposed, there occurred only two cases, both the patients recovered. Among 361 marines vaccinated early with no attempt to control exposure, there occurred two cases, both patients coming down after the first injection; both recovered. Among sixty-two marines at the ammunition depot who were vaccinated early, there occurred three cases; two after the first injection and one after the third; there were no deaths. Among 662 bluejackets at the Seattle training camp, three men developed the disease after the first injection, one after the second injection and seven after the third; there were no deaths. Among eighty-three of the Aviation Corps there occurred thirty-two cases, thirty-one of the patients coming down within a few hours after the first injection and

Fig. 4.—Drawing from blood agar plate to show hemolysis (not a very satisfactory picture of the plate).

INCIDENCE AND FATALITY IN VACCINATED AND UNVACCINATED PERSONNEL

	Complement		Cases		Per Cent. Attacked		Deaths		Case Fatality Percentage	
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
Philadelphia Unit.......	131	855	37*	168	28.2	19.6	0	21	0	12.5
Seattle Training Camp No. 1..................	.....	4,159	..	813	....	19.5	..	33	..	4+
Seattle Training Camp No. 2..................	662	.....	11	...	1.60	....	0	..	0	
Seamen's Barracks, Puget Sound..........	2,800	3,472	57†	428	2.03	12.3	0	42	0	9.8
Marines, Puget Sound Navy Yard and Am-										
	425	.....	5	...	1.2	....	0	..	0	
	111	.....	2	...	....	1.8	0	..	0	
	83	.....	32‡	...	38.5	....	0	..	0	

* Twenty-six of the thirty-seven vaccinated came down before vaccination was completed.

† Fifty-five of the fifty-seven came down after one injection and did not complete the process.

‡ Thirty-one of the thirty-two came down after the first injection.

eighteen hours after onset, eight within three days and one after three weeks' illness.

The technic of blood cultures was as follows: Three c.c. of blood were drawn under aseptic precautions and placed in an Erlenmeyer flask containing 30 c.c. of 1 per cent. glucose broth plus 1 per cent. of sheep serum. After incubating for twenty-four hours there was usually an abundant growth.

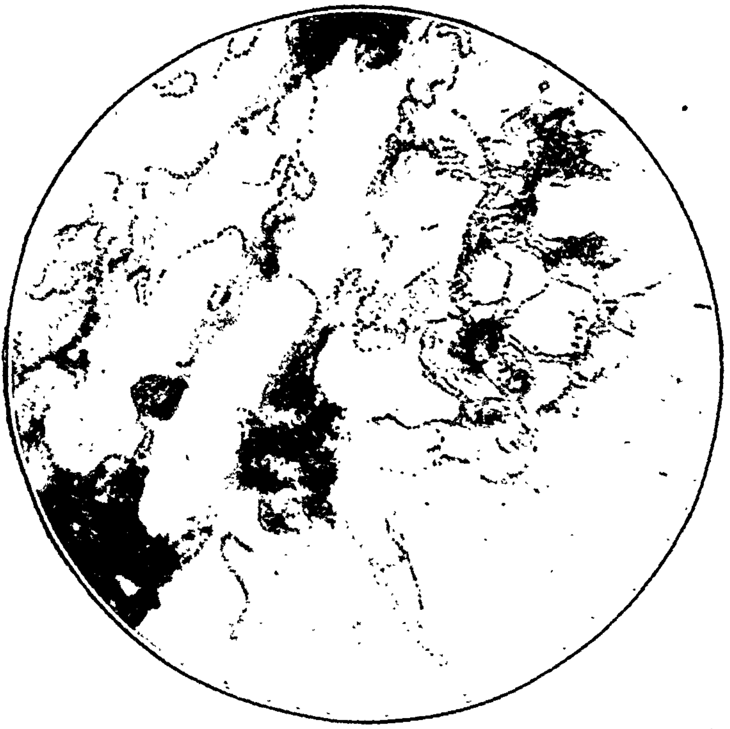

Fig. 2.—Marked chain formation in bouillon culture (twenty-four hours) made direct from human blood from patient who recovered; × 1,000.

CULTURAL AND STAINING CHARACTERISTICS, AND REACTIONS

On tubed solid mediums the organism we are describing grows in small, discrete colonies. On blood agar plates the colonies are usually larger, and when recently from the human body are surrounded by a well marked hemolytic zone. Hemolytic properties are quickly lost in subcultures, but may be restored by passage through rabbits or white mice. The microscopic appearance in smears from human and animal tissues is that of a coccus, occurring in short or long chains; once a diplococcus only was obtained from a blood culture. In the mouse the organism may show as mixed diplococci and streptococci. On agar the growth may also show mixed diplococci and streptococci, or there may be chains of diplococci, and after a few generations bouillon cultures may show diplococci predominating and even groups suggesting staphylococci, though when grown in bouillon direct from human and animal tissues, chain formation is the rule, the units in the chains varying in number from four to twenty. Some strains retained their chain-forming properties much more persistently than others. The size of the organisms varied from 0.3 to 1 micron; they were usually true spheres, but occasionally were somewhat elongated. The development of the organism in broth produces diffuse cloudiness accompanied by varying amounts of sediment. Acid was produced in glucose and lactose 4.6 and 2.1 degrees respectively (phenolphthalein). No gas was produced. The organism is gram-positive and stains readily with the ordinary anilin dyes. A capsule was demonstrated in only one strain from the peritoneal cavity of a mouse. In addition to the hemolytic property noted on blood agar plates, it was found that when 0.5 c.c. of a twenty-four-hour broth culture was mixed with the same amount of a 5 per cent. suspension of red blood cells (rabbit) in physiologic sodium chlorid solution and incubated at 37 C. for one hour, the cells were completely hemolyzed. This was also true of a strain that grew as a diplococcus.

BILE SOLUBILITY

A twenty-four-hour broth culture was filtered through gauze and cotton to remove sediment and large clumps. The filtrate was then centrifuged in Hopkins tubes, the liquid pipetted off and just enough salt solution added to the precipitated organisms to make a distinctly cloudy suspension. Two-tenths c.c. of fresh sterile ox bile was added to 1 c.c. of this suspension and incubated at 37 C. for one hour. Solution of the organisms did not occur. It will be recalled that the organism was obtained direct from the bile at two necropsies.

AGGLUTINATION AND PRECIPITIN REACTIONS

The organism did not agglutinate in Types I, II and III antipneumococcic serum nor in serum from convalescent patients.

A precipitin reaction was obtained in a 1:25 dilution in Type I serum and in a 1:50 dilution in Type III serum. Similar reactions were thus obtained in serums of persons ill of the disease: 1:25, one; 1:50, two; 1:800, one. No others were tried.

PATHOGENICITY FOR MICE AND RABBITS

Injections of 1 c.c. of a twenty-four-hour broth culture into the ear veins of rabbits invariably killed the animals in from eighteen to seventy-two hours. A marked and constant lesion in these animals was a purulent arthritis affecting the larger joints particularly the midjoints of the limbs (corresponding to the elbows and knees). The organism could be demonstrated in great numbers in the tissues and particularly in the pus from the joints, always in chains. Five-tenths c.c. of a twenty-four-hour broth culture invaria-

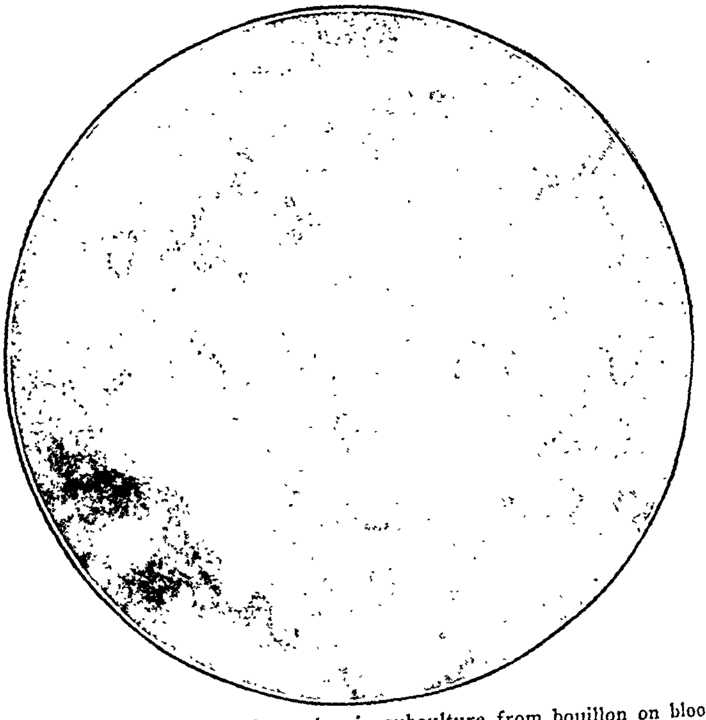

Fig. 3.—Marked chain formation in subculture from bouillon on blood agar plate; × 1,200.

bly proved fatal when injected intraperitoneally into white mice, death occurring in from twelve to twenty-four hours. Smears from the peritoneal fluid showed usually chains, occasionally pairs only, and sometimes both. Cultures made from this fluid, in bouillon, rarely failed to show marked chain formation, even though smears from the fluid showed only diplococci.

TECHNIC OF PREPARATION OF VACCINE

(*a*) Mixed virulent strains of hemolytic streptococci obtained as related are grown for twenty-four hours in 1 per cent. glucose broth plus 1 per cent. sheep serum.

(*b*) At the end of twenty-four hours the supernatant liquid is poured off from the sediment.

(*c*) The organisms from the supernatant fluid are thrown down in a centrifuge.

(*d*) The sediment left in the culture flasks is filtered through gauze and cotton and centrifuged.

(*e*) The two portions of solid micro-organisms are mixed, enough 0.8 per cent. salt solution plus 0.25 per cent. phenol being added to make a heavy suspension. Care should be taken not to add too much salt solution at this stage.

(*f*) The suspension is placed in a sterile bottle with beads and it is shaken to break the clumps.

(*g*) It is filtered again through gauze and cotton.

(*h*) It is filtered again through an alendem filter crucible at 15 pounds pressure; this does not remove the organisms.

(*i*) A small quantity of the filtrate is taken as it comes from the alendem crucible, and by means of a Hopkins tube the number of organisms per cubic centimeter is estimated.

(*j*) Salt solution (plus phenol) is added to make a dilution of 250 million organisms per cubic centimeter.

(*k*) This is tubed, capped and immersed in a water bath for one hour at 56 C.

(*l*) Each tube is tested by planting 3 or 4 drops on blood agar and incubating for twenty-four hours.

The dose used here is 0.25, 0.5 and 1 c.c., given at forty-eight-hour intervals.

INCIDENCE IN VACCINATED AND UNVACCINATED PERSONNEL

Influenza was introduced at the Puget Sound Navy Yard by a draft of men (987 in number) from Philadelphia, many of whom arrived ill or came down within a few hours after reaching this station. A tabulated statement of cases and deaths in the different units is given herewith.

It is fair to say that no unit was divided into two parts for the purpose of running experimental subjects and controls side by side. Circumstances were such that this could not well be done. It is also fair to say that in our largest unit (seamen's barracks) many cases had already occurred before vaccination could be done; we do not know how many. This is also true of the Philadelphia unit. It is not true of the rest of the command.

Conditions of exposure were not materially different in the different units. Conditions of housing differed in that some men were in barracks and some in tents; but this seemed to make no difference with regard to incidence. All of the marines were in barracks, rather closely quartered. All of the Seattle training camp men were in tents, two men to a tent (8 by 10).

The following facts stand out prominently:

Of 4,212 men who were vaccinated, not one man died. Among 111 Filipinos isolated and vaccinated early and later exposed, there occurred only two cases, both the patients recovered. Among 361 marines vaccinated early with no attempt to control exposure, there occurred two cases, both patients coming down after the first injection; both recovered. Among sixty-two marines at the ammunition depot who were vaccinated early, there occurred three cases; two after the first injection and one after the third; there were no deaths. Among 662 bluejackets at the Seattle training camp, three men developed the disease after the first injection, one after the second injection and seven after the third; there were no deaths. Among eighty-three of the Aviation Corps there occurred thirty-two cases, thirty-one of the patients coming down within a few hours after the first injection and

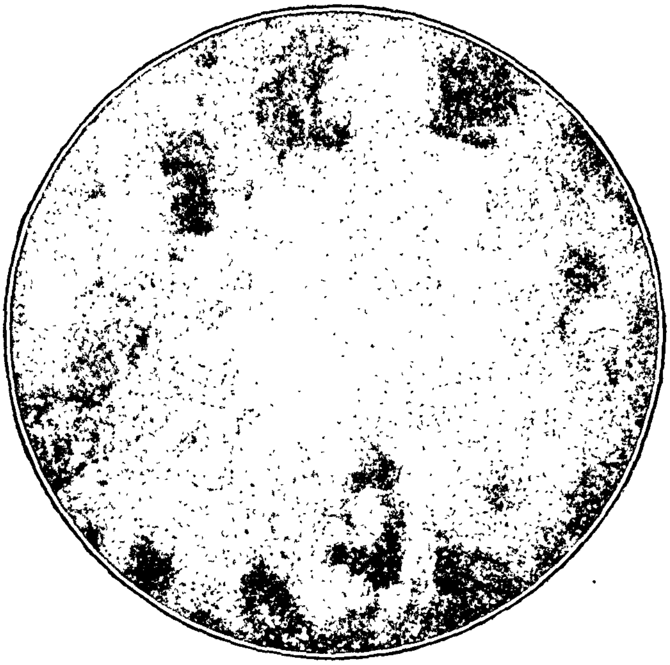

Fig. 4.—Drawing from blood agar plate to show hemolysis (not a very satisfactory picture of the plate).

INCIDENCE AND FATALITY IN VACCINATED AND UNVACCINATED PERSONNEL

	Complement		Cases		Per Cent. Attacked		Deaths		Case Fatality Percentage	
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
Philadelphia Unit.......	131	855	37*	168	28.2	19.6	0	21	0	12.5
Seattle Training Camp No. 1..................	.....	4,159	..	813	....	19.5	..	33	..	4+
Seattle Training Camp No. 2..................	662	.....	11	...	1.60	....	0	..	0	
Seamen's Barracks, Puget Sound..........	2,800	3,472	57†	428	2.03	12.3	0	42	0	9.8
Marines, Puget Sound Navy Yard and Am-	425	.....	5	...	1.2	....	0	..	0	
	111	.....	2	...	....	1.8	0	..	0	
	83	.....	32‡	...	38.5	....	0	..	0	

* Twenty-six of the thirty-seven vaccinated came down before vaccination was completed.

† Fifty-five of the fifty-seven came down after one injection and did not complete the process.

‡ Thirty-one of the thirty-two came down after the first injection.

one after the third injection; there were no deaths. Altogether there were 1,279 men who were vaccinated either before exposure or about the time they were exposed, and of these ninety-four developed the disease before vaccination was completed and eleven afterward. All recovered. Some of the cases in the vaccinated were fairly severe and from the blood of one of these patients a streptococcus was recovered.

The period of observation was from September 17 to Oct. 21, 1918. Up to November 3 there had occurred but forty additional cases at the Seattle training camp and sixteen at the Puget Sound Navy Yard, facts which seem to indicate that the epidemic was practically over at the time these data were obtained. There have been several deaths since October 21, but so far none among those who were vaccinated (November 9).

CONCLUSIONS

We believe that the disease called influenza at the Puget Sound Navy Yard was due to the organism described above, and that despite variations it should be classed as a hemolytic streptococcus, at least until such time as the relationship between diplococci and streptococci is more accurately established. Our findings failed to show that the influenza bacillus was in any way connected with the production of the disease at the Puget Sound Navy Yard.

We believe that the use of killed cultures as described prevented the development of the disease in many of our personnel and modified its course favorably in others. We at first used a single strain, but later mixed two or more strains. We do not know that the latter is advantageous.

Attention is invited to the fact that a vaccine made from streptococci apparently protected 662 blue jackets in a camp where Henry found what he considered pneumococci only.

We suspect that there may be different strains of the organism causing influenza (call it what you please), and recommend for vaccines cultures recently from human tissues, preferably from cases in the same community where the disease is prevalent; such cultures must kill rabbits promptly when given intravenously. One should not forget to add a little serum to the culture medium.

We offer no suggestion with regard to the duration of the immunity produced, and in our experience vaccination may be repeated without inconvenience.

We further suggest that the vaccine be tried out in smaller doses as a therapeutic agent in cases in which there is delayed convalescence, unless there is empyema or other evidence of localized suppuration.

Flatulence and Sleep.—Take the earliest example—the *infant* "muling and puking in its nurse's arms"—keeping its careworn parents awake half the night. Why does the rocking the cradle or "dandling" in the arms so often soothe and produce sleep? Because, owing to the constantly changing axes of the loops of intestines, the bubbles of wind are enabled to pass on. "The hand that rocks the cradle moves the wind." Far better than "ruling the world"! For just the same reason the sleepless adult tosses on his bed from side to side. By doing so he involuntarily coaxes the flatulence to move on from the loops of intestine where it has been accumulating and sending those disturbing messages to the higher centers. And hence many a patient will sleep better after a dose of calomel or blue pill than after one of the recognized hypnotics.—G. King Martyn, M.D., *Medical Press and Circular.*

DEPRESSED FRACTURE OF THE MALAR BONE

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Preparation for the activities of war has made this lesion more frequent than was usual in civil life. It is caused by direct violence of a fall or blow. Automobile or motorcycle mishaps, bayonet and trench drill, mule kicks, and blows in boxing and baseball have been factors in cases brought to our hospital. The extent of the depression, the location of the fracture line, and complicating fractures of other bones differ with the force and direction of the trauma.

In construction, the malar bone itself is more rugged than the maxilla in the immediate vicinity of its articulations. The occasional occurrence of complete or partial anesthesia of the area of distribution of the infra-orbital nerve demonstrates definitely that the fracture line runs through its foramen of exit. The orbital plate is also involved. The temporal process may or may not be broken. Emphysema was present in one case. When depression is slight, the external aspect may be speedily covered by the resulting swelling. It is consequently not discovered until the swelling subsides and the deformity becomes manifest.

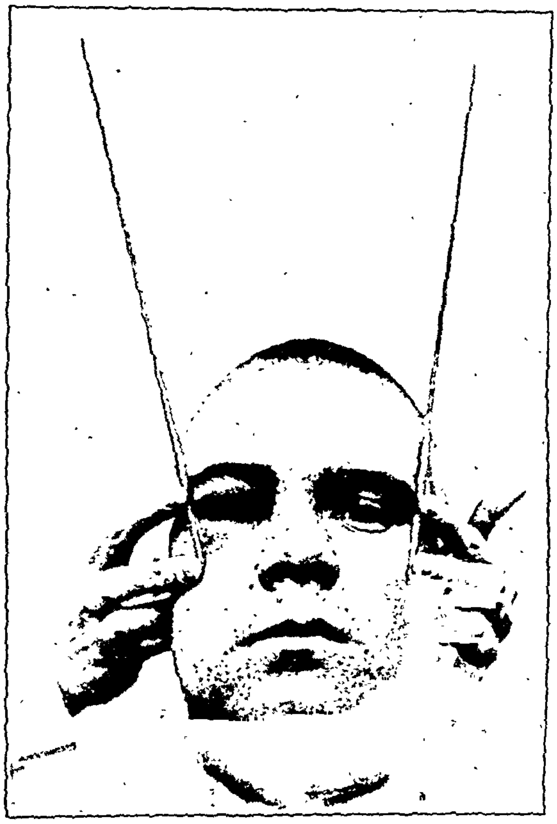

Fig. 1.—Method of diagnosis in depressed fracture of the malar bone.

We have devised a method of diagnosis, illustrated in Figure 1, which definitely determines even a slight depression. Two straight wooden applicators are placed, vertically at the outer edge of the orbit from the prominence of the cheek bone upward, as shown. If depression exists, the difference in angle is obvious. The swelling may be pushed out with the finger tip and the end of the applicator given firm rest on the bone.

The bone may usually be easily raised into position by grasping it through the skin with heavy tenaculum forceps. The ordinary towel clips at hand in every surgery answer the purpose admirably. A general anesthetic must be given. Gas does well, as the operation is short.

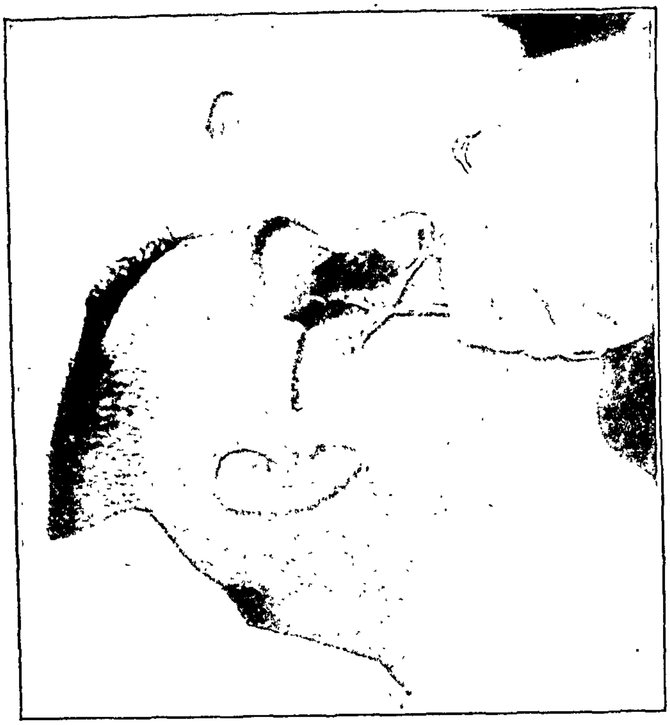

Fig. 2.—Raising of bone by heavy tenaculum forceps.

Figure 2 illustrates the operation. The photograph was taken just as the bone had been raised into place. Figure 3 shows the position of the grasp.

The operator must satisfy himself, both by palpation and by reapplication of the test, that the normal position has been attained. As a rule, when raised, the bone sticks well in place. In one case, during the palpation to determine its position, it slipped down and had to be raised a second time. Caution should be observed to protect the cheek from external pressure until it is well fixed by healing.

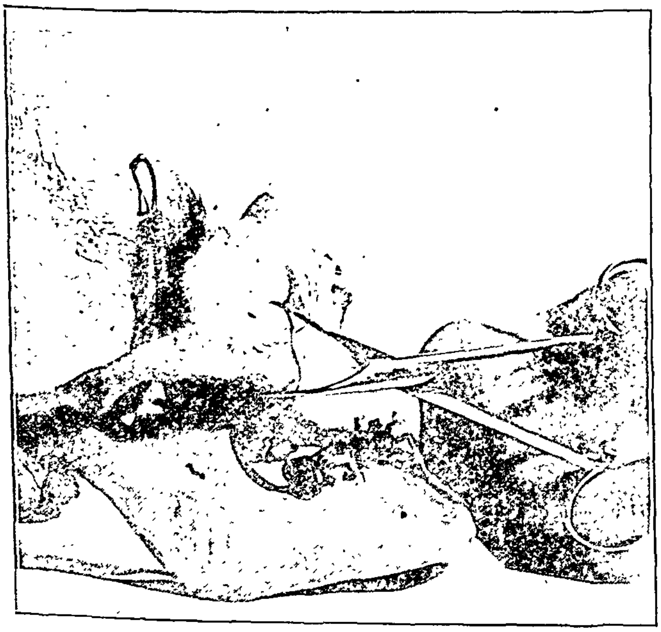

Fig. 3.—Position of grasp.

The facility and accuracy of this method may obviate the flat cheeks that are permanent deformities unless timely correction is made.

RUPTURE OF ENCAPSULATED EMPYEMA INTO THE PLEURAL CAVITY

REPORT OF TWO CASES

HENRY M. THOMAS, JR., M.D., (BALTIMORE)
First Lieutenant, M. C., U. S. Army
CAMP MEADE, ADMIRAL, MD.

Following the recent epidemic of influenza at the base hospital, Camp Meade, Md., there were observed two cases that presented a syndrome altogether new to those of us who saw them. We are familiar with cases of empyema rupturing into a bronchus, and have read of cases rupturing externally, but we have nowhere seen described the striking condition brought about by the rupture of an abscess or encapsulated empyema into the pleural cavity. The serious nature of such an occurrence, as shown by the death of one patient in thirteen hours and the desperate condition of the other when operated on, the probable fatal outcome of all cases undiagnosed, and the possibility of saving the patient's life by a prompt recognition of the condition coupled with surgical interference, makes the report of these two cases desirable. Occurring as a sequel of the influenzal pneumonia that has swept through all the camps, it seems probable that our experience will be duplicated elsewhere.

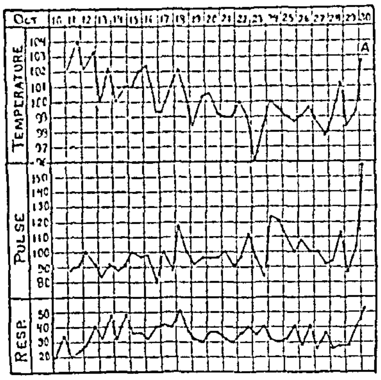

Fig. 1 (Case 1).—Temperature curve, showing patient's improvement until the rupture of the encapsulated empyema. *A*, died, 12:30 p. m.

REPORT OF CASES

CASE 1.—J. E., a private of the supply company, Thirty-Third Field Artillery, was admitted to the base hospital, Oct. 10, 1918, from Evacuation Hospital No. 38, where he had been treated since October 6 for influenza. A diagnosis of bronchopneumonia was made. On admission the physical examination showed both lungs full of moist râles; over both bases behind, the breath sounds were bronchovesicular and the percussion note was impaired. These lung signs remained about the same until October 29, when the right lung was found to be clearing up, but râles were still present throughout the left lung; his temperature had not gone above 100 for a week, and his general condition was much improved.

October 29 at 11 p. m., the patient suddenly complained of a severe pain in the right axilla which was made worse by deep inspiration; a soft pleuritic rub was heard low in the right axilla. One sixth grain of morphin gave no relief, and his condition gradually became worse until 4 a. m., October 30, when the officer of the day was called. He found the patient in an alarming condition; pulse, 160; respiration, 52. He was obviously ill and apprehensive; his dyspnea was extreme, and each shallow breath was evidently attended by much pain. The pain at this time was localized in the right abdomen, which was found to be markedly distended; the abdomen was tender throughout, but more so on the right side; and the liver dulness was obliterated by tympany. His condition was thought to be due to some acute abdominal complication, such as perforation, but the quality of his pulse was so poor that no surgical interference was undertaken. One eighth grain of morphin only slightly ameliorated the symptoms, and a soapsuds enema did not relieve the distention. At 8 a. m. the patient's condition was the same.

At 10:30 a. m., a careful examination of the chest revealed the fronts clear; in back on the right side below the angle of the scapula, the percussion note was flat and the voice and breath sounds had a distant quality. Fluid was suspected in the right chest, but the abdominal symptoms were so prominent and the patient was so completely in a state of shock that its place in the picture seemed unimportant. The white blood count was 71,500; differential count revealed: polymorphonuclears, 95 per cent.; small mononuclears, 4 per cent.; large mononuclears, 1 per cent.

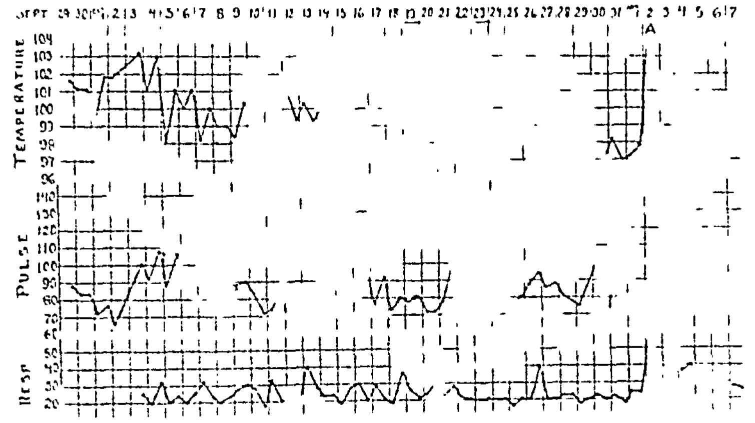

Fig. 2 (Case 2).—Temperature curve, showing patient's improvement until the rupture of the encapsulated empyema, and course following operation. *A*, thoracotomy.

At 12:30 p. m. the patient died.

A postmortem examination revealed the right lung compressed by about a liter of thin, dirty "dish-water" pus from which a hemolytic streptococcus was grown. The lung was tightly tied down to the diaphragm by strong adhesions. In the fissure between the upper and lower lobes, there was an old pocket which might have contained several drams of pus. The compressed right lung showed some areas of pneumonic consolidation. The left lung was essentially normal on gross examination. The intestine was markedly distended; otherwise the abdomen yielded nothing of interest. The cause of death was empyema of the right side complicating bronchopneumonia.

At a loss to explain the sudden change in the condition of the patient and his subsequent early death, we were forced to the conclusion that a rapid absorption of toxins from a large area of serous membrane, associated with a sudden accumulation of fluid, had taken place. The rupture of an encapsulated empyema into the pleural cavity seemed a reasonable assumption as to the cause of the sequence of events, which had simulated quite closely the rupture of an appendical abscess.

Three days later the second example of this syndrome occurred, and the outcome made us feel that our conception of the course of events in the first case had been essentially correct.

Case 2.—C. L., a private of Company K, Seventeenth Infantry, was admitted to the base hospital, Oct. 2, 1918, from Evacuation Hospital No. 38, where he had been ill since September 28 with influenza. A diagnosis of bronchopneumonia was made. The patient improved rapidly and, October 28, was allowed to be up and around the ward, at which time there were noted a few râles over both lungs behind, but no signs of any consolidation or fluid.

November 1, at 7 p. m., while raising himself from lying across a bed, the patient suddenly felt a sharp pain in his left side. Physical examination failed to reveal any abnormal chest findings.

November 2, at 9 a. m., after a sleepless night, his temperature was 104, pulse, 140 and thready, and respiration, 58. From a condition of apparent health the patient had rapidly passed into a critical state in the course of a few hours. His eyes were bright, cheeks flushed, and breathing shallow and very rapid, accompanied by an expiratory grunt. The left lung showed tubular breathing and flat percussion note over base below the angle of the scapula extending to the anterior axillary line; over the right back below the seventh rib, the percussion note was flat and the breath and voice sounds were markedly diminished. The abdominal muscles were rigid, and tympany extended up over the costal margin as high as the sixth rib on the right side. The white blood count was 41,000; polymorphonuclears, 98 per cent.; small mononuclears, 2 per cent.

Thoracentesis in the eighth interspace below the angle of the left scapula yielded 150 c.c. of turbid "dish-water" pus which, when examined, showed many cocci occurring singly and in pairs (on culture, the pneumococcus).

Three thoracenteses on the right side yielded negative results, the signs probably being due to extreme upward displacement of the liver by tympanites in the rigid abdomen. Removal of the fluid seemed to give the patient slight relief, but his condition was critical.

At 3:30 p. m. thoracotomy was done and a large amount of pus was slowly drained from the left chest, following which, his condition improved slightly.

November 3, the patient being definitely better, the Carrel-Dakin treatment was begun. From then on his improvement was satisfactory.

ESSENTIAL FEATURES OF THIS SYNDROME

During a more or less normal convalescence, the patient feels a sudden, sharp pain in some part of the chest, brought on by a slight exertion. In a few hours he becomes critically ill; the temperature rises sharply to from 102 to 104; the pulse is rapid and thready; the respirations are between 50 and 60 a minute, shallow and extremely painful. The eyes are bright, the cheeks flushed, and the expression is anxious. Mentally the patient is alert and fully aware of his critical condition. The pain is localized in the lower part of the chest or entirely in the abdomen.

On examination, the abdomen is found to be greatly distended, marked tympany extending well up over the liver, and the tenderness, which is general, may be more marked on one side than on the other. The chest findings are not striking, but may show evidence of a small amount of fluid at one base. The white blood count reveals an extraordinary polymorphonuclear leukocytosis. The patient's condition becomes progressively worse, with no change in the picture except for increasing prominence of the signs of fluid in the chest.

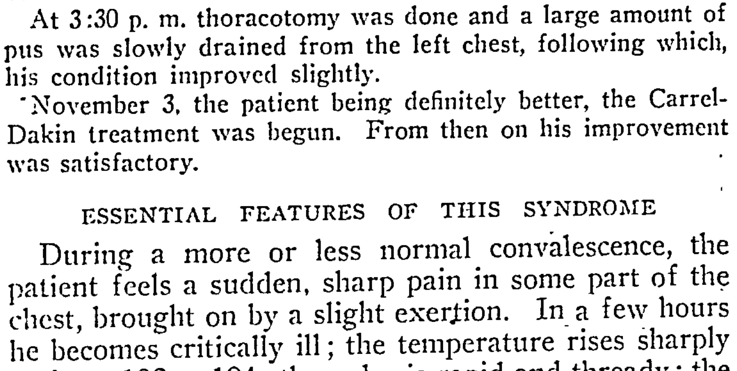

Fig. 3 (Case 3).—Temperature curve, showing course prior and subsequent to operation. *A*, thoracotomy.

COMMENT ON CASES

The prominence of the abdominal symptoms and the extreme prostration of the patient led us in the first case to a faulty diagnosis. In retrospect, however, we were impressed by the absence of vomiting, which would have been expected in a case of general peritonitis.

What occurred, then, was the rupture of a small encapsulated empyema and the quick spread of pus over a large area of the pleural surfaces. As the pleura reacted, a rapid accumulation of fluid took place in the pleural cavity, pushing the lung up and tugging on the adhesions which, in the first case, bound the lung tightly to the diaphragm. The toxemia, owing to the rapid absorption of pus from a serous membrane rich in lymphatics, produced the remarkable reaction that caused sudden collapse. The meteorism and leukocytosis were indexes of the severity of the reaction. The pleuritic pain, coupled with the abdominal distention, explains, though somewhat inadequately, the extraordinary degree of dyspnea. We believe that satisfactory treatment of this condition depends on its early recognition and free drainage of the pleural cavity, thoracotomy being the procedure of choice.

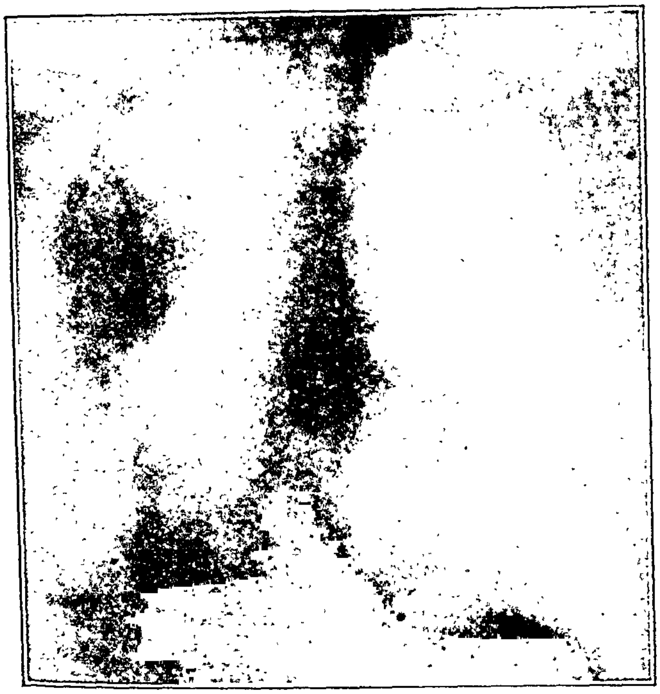

Fig. 4 (Case 3).—Encapsulated empyema which gave no physical signs, being covered completely posteriorly by the scapula and anteriorly and laterally by air-containing lung.

A third case accidentally revealed by the roentgen ray is interesting in connection with the two just discussed:

Case 3.—S. L., a private of Company 6, One Hundred and Fifty-Fourth Depot Brigade, was admitted to the base hospital, Sept. 28, 1918. A diagnosis of influenza was made.

October 2, bronchopneumonia of the right lung was discovered, and three days later the temperature reached normal. During the next three weeks the patient's convalescence was satisfactory, except for an occasional evening rise of temperature to 100 or 101.

October 28, the physical signs at the right apex suggested the possibility of the condition being a flare-up of an old pulmonary tuberculosis, and so a roentgenogram was made (Fig. 4). This plate showed the presence of an encapsulated empyema entirely covered posteriorly by the scapula and anteriorly and laterally by air-containing lung tissues. At operation about 400 c.c. of thick pus (on culture, pneumococcus) was removed.

Without the aid of a roentgen examination and the subsequent surgical treatment, this case might have followed a course similar to that of Cases 1 and 2.

Two other cases very similar to this one have been observed since our attention was directed toward them.

The prevalence of pneumonia at this time, the impossibility of having a roentgenogram made of every patient, and the lack of physical signs or symptoms preceding this condition, make it probable that other such cases will occur in the near future, and we hope that our experience will prove helpful to others.

PROPHYLACTIC INOCULATION AGAINST RESPIRATORY INFECTIONS

DURING THE PRESENT PANDEMIC OF INFLUENZA
PRELIMINARY REPORT *

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ROCHESTER, MINN.

In attempting to lessen the incidence and to reduce the severity of infections of the respiratory tract by vaccination, it is essential to consider the wide range of bacterial flora, the relative prevalence of each species, as well as the fluctuations in incidence and severity of these infections with changes in season. The well-defined tendency of bacteria of the same species to localize differently in different epidemics indicates peculiar infecting and antigenic powers. The short duration of immunity to infections following attacks adds greatly to the difficulty. However, owing to the high incidence and high mortality rate from infections of the respiratory tract during the present epidemic, a painstaking effort to raise the resistance of individuals by inoculation with appropriate vaccines appeared to be strongly indicated.

In considering prophylactic inoculations in this epidemic of influenza, we put aside the debated question as to the cause of the initial symptoms and considered primarily the possibility of immunizing persons against the bacteria, pneumonia, streptococci, influenza bacillus and staphylococci, which are conceded by all to be the common causes of death in this disease. It was thought that it might be possible to raise to some degree, by artificial means, the immunity of persons to these micro-organisms to which they appear so susceptible, and thus to lower the incidence of the more serious respiratory infections, particularly pneumonia.

The bacteria found as the cause of the complications in this epidemic appear to have exalted and peculiar infecting powers. The mode of death and the findings in the lungs, for example, in the so-called acute bronchopneumonia following influenza, are quite unique and are strikingly similar, irrespective of the species of micro-organism present. Infection of the lung by hemolytic streptococci without empyema and without tonsillitis indicates peculiar localizing power of this micro-organism. The influenza bacillus appears to have acquired peculiar virulence. The frequency of staphylococci in the sputum and lung associated with pneumococci and streptococci far exceeds that which occurs in lobar pneumonia. A study of the various strains isolated has revealed commonly marked variations in cultural and other properties. Owing to

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* From the Mayo Foundation.

* Read before the American Public Health Association, Chicago, Dec. 10, 1918.

these findings, it was the plan to prepare the vaccine not from saprophytized laboratory strains, as is too often the rule in vaccine therapy, but from strains freshly isolated from the sputum and lungs, and to incorporate the bacteria in the vaccine in about the proportion in which they are found, and before the more or less peculiar properties disappear. A bacteriologic study, made during the progress of the epidemic, showed a decided change in the bacterial flora, and hence new strains were added from time to time in order that the vaccine might represent as nearly as possible the bacterial flora of the disease at various stages of the epidemic.

Heretofore lobar pneumonia has been unusually prevalent for some months following epidemics of influenza. It was felt that this would be particularly apt to be the case following the present epidemic, since it began early in the season. It was decided, therefore, to include a series of the fixed types of pneumococci in the vaccine, although they were infrequently isolated, especially during the early part of the epidemic.

A study of the secretions from the nose and throat, of the sputum and lung exudate, from the very beginning of the epidemic as it occurred in and about Rochester, revealed commonly, among other bacteria, a streptococcus having some distinctive features. Smears from the nose and throat and sputum at the onset of the attack show quite constantly large numbers of this organism in the form of gram-positive lanceolate diplococci occurring singly, but more often in rather long chains. The epithelial cells are frequently found packed with this micro-organism. On artificial cultivation of these exudates it presents morphologic and cultural features both of the pneumococcus and of *Streptococcus viridans.* It produces on isolation a rather moist, spreading, nonadherent, greenish colony on blood agar plates, and a diffuse cloud in glucose broth. On solid mediums it grows as a lanceolate diplococcus of quite uniform size, and usually is surrounded by a distinct capsule. In glucose broth it produces lancet-shaped diplococci in rather long chains. Smears from the older cultures often show extreme variations in size and shape. Injection of sputum into guinea-pigs is usually followed by death from peritonitis, the peritoneal exudate and blood showing this organism in pure or almost pure form. It is more virulent than the green-producing streptococci from the throats of normal persons, but is less virulent than pneumococci from lobar pneumonia. The strains do not usually ferment inulin. It does not autolyze readily and is not soluble in bile. Owing to these findings the vaccine was made to contain a heavy mixture of these strains.

The organism is undoubtedly the one found by the English investigators and designated by them as diplostreptococcus, and the one found by Mathers and for which Tunicliff finds an increased opsonic content in the serum of convalescent patients. Immunologic and other studies to determine further the relations of this organism to influenza are under way and will be reported later.

Hemolytic streptococci were found next most frequently, particularly in fatal cases during the first half of the epidemic. *Staphylococcus aureus* and influenza bacilli appear to play a minor but definite rôle in the production of the complicating pneumonia in some cases. Hence, examples of strains of hemolytic streptococci, staphylococci and influenza bacilli were included in the vaccine.

PREPARATION OF THE VACCINE

The formula of the vaccine used during the earlier part of the epidemic, and exclusively in the cases in this report, is given in Table 1. The bacteria were grown for from eighteen to thirty-six hours at from 33 to 35 C., in 0.2 per cent. glucose broth. The broth was autoclaved at 20 pounds pressure for from one to two hours to insure freedom from living spores. The glucose was added in a sterile manner from a concentrated sterilized solution in water. It was found that the cultures of pneumococci and streptococci yielded approximately 1,000 million bacteria, and *Staphylococcus aureus* 2,000 million bacteria per cubic centimeter. Luxuriant growth (about 1,000 million per cubic centimeter) of the influenza bacillus was obtained by adding approximately 1 c.c. of laked human blood per liter of glucose broth. The strains were grown separately in the flasks. Smears were made before centrifugation of each flask to eliminate possible contaminations. The pneumococci and allied green-producing streptococci, the staphylococci and influenza bacilli were separated from the broth culture by centrifugation,[1] and then suspended in sodium chlorid solution. At first 50 per cent. of the hemolytic streptococci were added in the form of the killed broth culture, and the other 50 per cent. in sodium chlorid solution suspension after centrifugation. But owing to rather severe reactions, only 25 per cent. of the hemolytic streptococci are added in the form of the broth culture. The streptococci in the broth culture are killed by the addition of 0.5 per cent. cresol. The centrifugated bacteria are suspended in sodium chlorid solution so that 1 c.c. represents approximately the growth from 50 c.c. of the broth culture, and are killed by the addition of from 1 to 1.5 per cent. purified cresol. The dense suspensions are diluted with an equal volume of sodium chlorid solution after the cultures, made twenty-four hours after the cresol is added, have remained sterile for forty-eight hours. In some instances the suspensions became slightly contaminated with *Bacillus subtilis,* when heating to 60 C. for one hour was necessary to render them completely sterile. If this was not sufficient, the suspensions were discarded. At first, owing to the urgent demand for the vaccine, the use of extreme heat in the sterilization of the broth, negative aerobic and anaerobic cultures at the end of from forty-eight to seventy-two

TABLE 1.—FORMULA OF VACCINE

Pneumococci, Types I (10 per cent.), II (14 per cent.) and III (6 per cent.)	30 per cent.
Pneumococci Group IV and the allied green-producing diplostreptococci described	30 per cent.
Hemolytic streptococci	20 per cent.
Staphylococcus aureus	10 per cent.
Influenza bacillus	10 per cent.

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[1] In connection with some work on poliomyelitis in which it became necessary to procure large quantities of the streptococcus, the ordinary large cup centrifuge proved inadequate. A number of centrifugal machines were tested to see if they might not facilitate greatly the clarification of broth in its preparation and to separate efficiently the bacteria from large quantities of liquid cultures. A number were found useful; but owing to the simplicity of construction and the ease with which bacteria may be obtained from the revolving bowl without contamination, the one manufactured by the Sharples Separator Company, West Chester, Pa., was selected and has proved satisfactory for the purpose. By the use of the small laboratory size, it is possible, for example, to separate the bacteria from 50 liters of broth an hour. The revolving bowl and other utensils with which the broth comes in contact are autoclaved. A galvanized iron hood built over the machine makes it possible to sterilize the air in the hood with steam; and by siphoning the broth cultures from the bottles, large quantities of bacteria may be collected without contamination.

hours were considered sufficient as sterility tests. It is now the rule to hold the vaccine until all cultures and animal tests have proved negative for one week. Blood agar and glucose broth and glucose brain broth and litmus milk in tall columns are the mediums used for the sterility tests. The vaccine is finally made up by diluting the dense suspensions in the proper proportions with sodium chlorid solution so that 1 c.c. contains approximately 5 billion bacteria. Purified cresol (0.3 per cent.) is used as a preservative. The initial dose for adults is 0.5 c.c. subcutaneously. This is followed in one week by 1 c.c. The third dose is given fourteen days after the first dose, and consists of 1.5 c.c. The doses in children are 0.1, 0.2 and 0.3 c.c. or more according to age. Owing to the relatively large doses, intervals shorter than one week between injections are considered inadvisable.

RESULTS

In most instances there is a moderate local reaction. Constitutional symptoms are usually mild or absent. Both local and general reactions are decidedly less than those following typhoid vaccines. Exceptionally severe reactions occur showing unusual individual susceptibility. The severer reactions are prone to occur in persons who give a history of recent exposure to the disease, or who already have beginning symptoms of it. In these persons, attacks may appear to be precipitated by the vaccination; but the course is usually short and relatively mild. Persons appear to be more sensitive to the vaccine during the incubation period than before or after the attack is established, or following recovery.

Physicians, nurses and employees of the several hospitals in Rochester were first inoculated. After it was determined that injections of the vaccine were followed by an increase in antibodies in the serum, that the inoculations appeared to be quite harmless, that there was no increased incidence of respiratory infection following the inoculations but an apparent decrease instead, it was decided to study its effects on a larger scale as the epidemic became acute. The vaccine was sent gratis for study by the Mayo Foundation to hospitals and physicians on request, on condition that reports of results be furnished.

TABLE 2.—INCIDENCE OF ILLNESS AND MORTALITY FOR ONE THOUSAND PERSONS

	Inoculated					Uninoculated
	After First Inoculation	After Second Inoculation	Within 7 Days after Third Inoculation	Within 6 Weeks after Third Inoculation	Total	
Influenza	23	10	9	14.6	56.6	229
Pneumonia	1.8	1	1	1.8	5.6	15.7
Meningitis	0	0	0	0	0	0.4
Encephalitis	0.04	0	0.05	0	0.09	0.2
Deaths from influenza, or pneumonia	0.63	0.08	0	0.19	0.9	3.4
Total number of inoculated and uninoculated persons	28,459	26,150	20,792	20,792	....	61,753

The reports included in this paper are from physicians, hospitals and other institutions, chiefly from cities and towns within a radius of 200 miles from Rochester.

In Table 2 is given a summary of the results obtained in a considerable number of inoculated and uninoculated control persons. The reports containing results in the vaccinated after the epidemic was on the decline are not included. The uninoculated represent such persons in institutions, colleges, factories, corporations and communities where the vaccine was used. Only those reports are included that contain accurate data as to the incidence and mortality among the uninoculated. The age in both the inoculated and the uninoculated falls mainly between twenty and forty years. The observations were made from Oct. 15 to Dec. 8, 1918. It will be seen that there was no apparent negative phase following the first inoculation and that there was a progressive diminution of incidence and death from influenza and pneumonia following the successive inoculations. The total incidence of recognizable influenza, pneumonia and encephalitis in the inoculated is approximately one-third as great as in the control uninoculated. The total death rate from influenza or pneumonia is only one-fourth as great in the inoculated as in the uninoculated. No cases of meningitis occurred in the former, whereas in the latter there were 0.4 per thousand. These results were obtained by including all persons who developed influenza or pneumonia and all who died from the day of the first inoculation, and 7,667 persons, or about one fourth of the total number who received only one inoculation.

The total incidence and death rate in the uninoculated controls are well within the average, as they occur during the present epidemic and hence serve as a fair basis for comparison. Experiments in which alternate control persons were inoculated were not done because of difficulty to obtain consent, and because, after all, the results from prophylactic inoculation must be sufficiently favorable to be apparent under the conditions included in this report.

All but two of over seventy physicians who have used the vaccine report that the attacks of influenza, if contracted by the inoculated, are milder and of shorter duration, and that convalescence is more rapid than in the uninoculated. This agrees with our observations, and is in keeping with the lower death rate among the inoculated. This difference has been noted in communities in which the incidence and mortality rate were exceptionally high as well as where they were comparatively low. In view of this observation, granting that the initial symptoms in influenza may be due to an unknown virus, the lowered incidence of influenza among the inoculated may be only apparent. The attacks may have been so mild as to escape detection.

Among the nurses at St. Mary's Hospital, Rochester, where fourteen developed influenza within two days prior to the first inoculation, only one case developed subsequently during a period of six weeks. Similar apparent protection was afforded to the personnel of other hospitals following vaccination. At the State Hospital for the Insane at Rochester, with a total population of about 1,500, where one case of influenza had occurred before the inoculations were given, only three cases occurred following the date of the first inoculation for a period of six weeks. With the occurrence of the second wave of the epidemic, however, there occurred a mild outbreak of the disease. This would indicate that the immunity is of short duration.

Nearly all of the patients with influenza and pneumonia admitted for treatment in the hospitals in Rochester, where approximately one half of the population has been vaccinated, have been from the uninoculated group, excluding those patients who contracted the disease elsewhere.

In one hospital in which the nurses had been inoculated, no cases developed after the inoculations, although the nurses continued to care for patients with influenza. Owing to the scarcity of vaccine, some of the nurses, living under identical conditions, were not inoculated, and a high percentage of these contracted severe attacks.

Numerous instances have been observed in which protection appeared to be afforded to inoculated members of families of which all the uninoculated became ill. Similar results were obtained when conditions among the inoculated and uninoculated were comparable, such as in offices, factories and schools, where nearly all were inoculated, or where only a small percentage were inoculated. Illustrating results are as follows:

Of 1,000 persons employed by one company, 481, about one half, received one inoculation; 224 received two inoculations, and ninety-five received three inoculations. From October 28, the date of the first inoculation, to December 8, 138 cases of influenza occurred, only twenty of which were among persons who had had one or more inoculations. Of these, fourteen had had only one inoculation, and the remaining six had but two inoculations. There were thirteen deaths, only two of which followed influenza among the inoculated, and in these two cases only one inoculation had been given.

The mortality from bronchopneumonia in pregnant women has been especially high during the present epidemic. The vaccinations in a fairly large number of such persons appear to have afforded some protection against this complication. The bacteria included in the vaccine belong to the general group of microorganisms associated commonly with chronic infections, such as arthritis, sinusitis and bronchitis; hence some effect should follow its injection. Striking instances of improvement in these conditions have been noted but whether due to specific or nonspecific effects or whether the vaccine acts as an "exfoliative stimulus" according to Larson, liberating preformed specific antibodies, remains to be determined.

From the results obtained thus far, it appears possible to afford a definite degree of protection by prophylactic inoculation to persons against the more serious respiratory infections during the present epidemic of influenza. The duration of immunity is not known, but indications are that it is relatively short.

The vaccine should contain freshly isolated strains of the more important bacteria in approximately the proportions as found in the sputum and lungs in the disease, and since the relative proportions of the bacteria at hand differ so markedly in widely separated communities, judging by the reports, the formula of the vaccine should be made to conform as nearly as practicable to the respective flora of the disease in the communities in which the vaccine is to be used.

A saline vaccine was used as an emergency measure. Owing to the large number of different bacteria that need to be included and the large doses necessary, a lipovaccine, judging by the recent work of Whitmore, ought to possess definite advantages, since reactions should be less severe, the formation of antibodies more marked, and the resulting immunity more enduring.

I am constantly being asked with regard to the use of the vaccine in treatment. Since the severer complications in influenza, such as pneumonia, do not usually begin until the fourth day or later, the vaccine, if given at the onset of the disease might reasonably be expected to afford some protection. The initial prophylactic dose daily for one, two or three days, provided no unfavorable symptoms occur, is recommended. The results obtained are considered preliminary, and final conclusions cannot be drawn at this time. It is indicated that the vaccine used was at least harmless, that a certain degree of protection was afforded, and that prophylactic inoculation against the respiratory infections, so fatal during this epidemic, be studied on a large scale by many according to the principles herein laid down.

TREATMENT OF INFLUENZAL PNEUMONIA WITH PLASMA OF CONVALESCENT PATIENTS*

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The addition of 33⅓ per cent. to the normal population of Washington during the past eighteen months has given us a great military camp with barracks-like overcrowding, yet there is nothing comparable to the military supervision of health conditions.

In the present epidemic, the Medical Department of the Navy is treating not only the officers and their families and the enlisted personnel, but also all civilian employees. Up to December 16, 567 cases of influenza and complicating pneumonias were treated at the Naval Hospital. Of these, 157, or 27.8 per cent., either came in with pneumonia or developed it during the residence.

Without going into the clinical picture of the disease, we may say that the outstanding feature is an overwhelming toxemia. Characterized by headache, muscular fatigue and pain, mental dulness, leukopenia and in many cases nausea and vomiting. Nature's forces, thus paralyzed, failed to respond to ordinary therapeutic measures, especially when pneumonia of whatever etiology complicated the disease. Two factors, we believe, aided in keeping our mortality percentage low in the first days of the epidemic, namely, digitalis and venesection. Isotonic glucose and sodium bicarbonate intravenously and massive doses of camphorated oil were each given in a series of cases without beneficial results. In the later stages venesection was most efficacious in combating dilatation of the heart and flooding of the lungs. Time and again when it seemed that the patient must drown in his own secretions, venesection cleared the bronchi and slowed respiration so that the patient was able to sleep. Blood was drawn with a needle into a sterile 8 ounce nursing bottle so that cultures might be made in each case. Out of forty cultures ten were found positive, showing pneumococcus Type I in 2 cases; Type II in 2 cases; Type IV in 4 cases, and *Streptococcus viridans* in 2 cases. Three patients having positive blood cultures recovered. Pfeiffer's bacillus was grown repeatedly from the sputum, lung puncture and necropsy material, but never from the blood stream.

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* Owing to lack of space, this article is abbreviated in The Journal by the omission of several charts. The complete article appears in the authors' reprints.

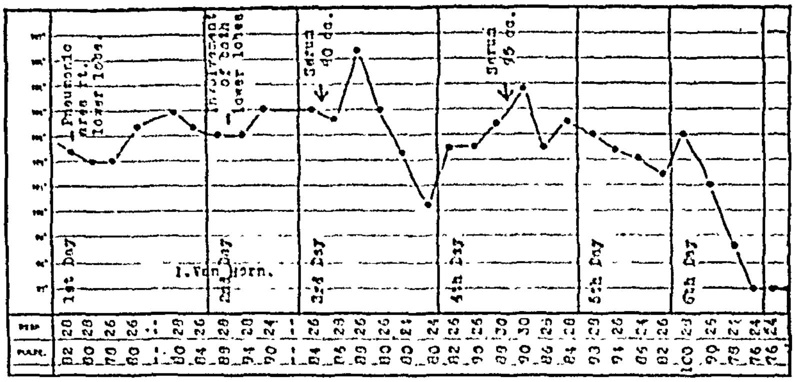

Chart 1.—Temperature, respiration and pulse in a case of influenzal pneumonia in a nurse. The attack began with a severe chill, cough, marked general pains, nausea and vomiting. Physical examination revealed signs of beginning pneumonia in the right lower lobe posteriorly. On the second day the pneumonic area in the right lower lobe showed signs of extending, and a small area was made out in the left lobe. The patient was prostrated, vomited continuously, and was unable to retain anything by mouth. She refused to accept serum treatment. On the third day the patient was much worse. Physical signs of pneumonia were extending in both lower lobes, prostration had increased, vomiting continued, and she was stuporous. Following the injection of plasma there was a chill with a rise in temperature to 106 with no disturbance in pulse or respiratory rate. Sweating was profuse. This was followed by a precipitate drop in temperature to 100 and an improvement of all symptoms. The patient was clear mentally, muscle pains were gone, and vomiting ceased. The following day the temperature again began to rise, the vomiting returned, and all subjective symptoms returned. A second injection of plasma was given and was followed by a slight chill and a rise in temperature. A few hours later the vomiting ceased entirely, the patient brightened up mentally, all pains were relieved, and convalescence was established.

At the height of the epidemic, a suggestion came from Boston Chelsea Hospital that the serum from convalescent patients might be of curative value. We at once determined to give the method[1] a thorough trial, but we chose to use citrated plasma rather than the serum obtained by clotting and centrifuging.

The apparatus and procedure as used by us has already been described.[2] Blood plasma is obtained by this method with the minimum of labor and danger of contamination. A larger amount of plasma is obtainable and the excess fluids added are a distinct advantage in view of the profuse perspiration following its administration. We believe that the failure of this method of treatment has been due in many cases to its having been tried half-heartedly, owing to the difficulties and labor involved in the collection of the plasma or serum.

On being discharged to the convalescent wards, the pneumonia patients are sent to the laboratory for Wassermann tests, and their venereal history is carefully inquired into. If convalescents are accepted, they are bled twice after being about the ward from four to six days, in amounts of from 300 to 500 c.c., with several days intervening between the bleedings. In only two instances have the donors mentioned sensations of faintness; these were of transient character and were probably due to the rapidity with which the blood was withdrawn. A majority of the men noticed that they gained weight much more rapidly after they had given blood.

The blood thus drawn is sedimented in the ice chest from twelve to twenty-four hours, and an average of 250 c.c. of plasma citrate-salt solution mixture are obtained from every 500 c.c. of blood.

METHOD OF ADMINISTRATION

The plasma is administered intravenously from a graduated container by the gravity method. A small needle and low pressure are used so that fifteen or twenty minutes are consumed in giving the average dose of 125 c.c. The arm selected is elevated and supported with a pillow, care being taken that there is no tight clothing about the shoulders, thus avoiding the possibility of stagnation and agglutination in the vein.

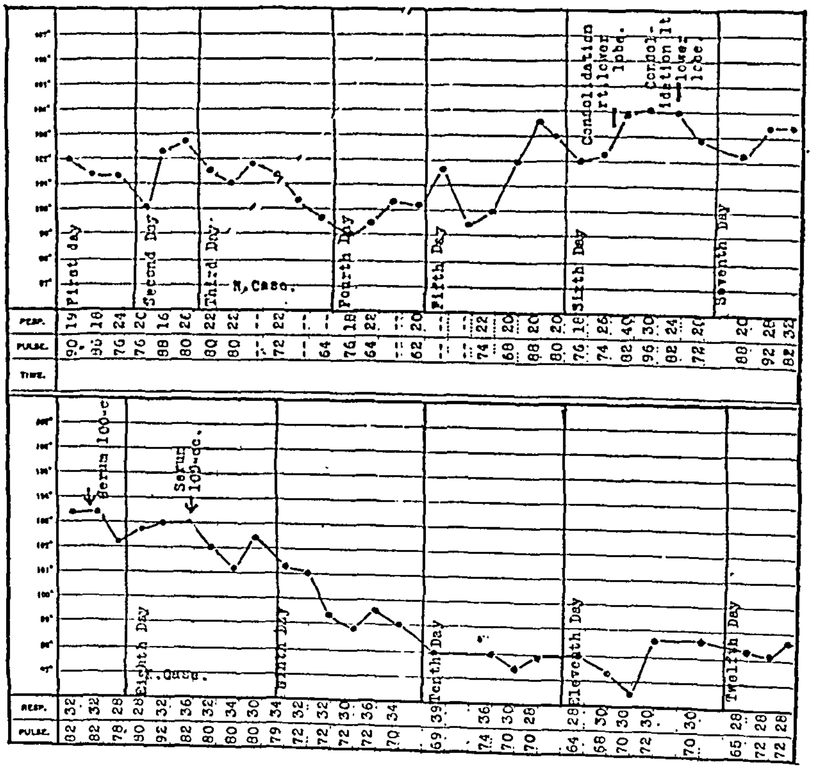

Chart 2.—Temperature, respiration and pulse in a case of influenzal pneumonia in a pharmacist who on the fifth day complained of being weak and worn out. No definite physical signs were made out. On the following day he was stuporous, showed marked prostration, and developed a severe cough. Physical examination revealed small pneumonic areas in both lower lobes. Twenty-four hours later he was given 100 c.c. of serum. There was no chill or reaction following it, but there was an immediate and marked improvement in his mental condition and entire relief from muscular pain. The injection was repeated on the following day and no reaction followed it. Next day the temperature reached normal.

With these precautions taken, it is not essential that the plasma be compatible with the blood of the patient. Indeed, grouping of the plasma and tests for compatibility are eliminated altogether. Doses of less than 100 c.c. are not indicated because they may produce uncomfortable reactions in the patients without giving any permanent relief of their symptoms.

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[1] The details of the method were later published by McGuire, L. W., and Redden, W. R.: Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum, J. A. M. A. **71:** 1311 (Oct. 19) 1918.

[2] Hartman, F. W.: New Methods for Blood Transfusion and Serum Therapy, J. A. M. A. **71:** 1658 (Nov. 16) 1918.

REACTIONS FOLLOWING ADMINISTRATION

In approximately 75 per cent. of the patients there is a response of some kind within two hours. This may be manifest by chilly sensations or a frank chill lasting several minutes, a rise in temperature of from 1 to 2 degrees, and drenching perspiration. The use of hot water bottles and extra blankets at this time affords comfort to the patient and encourages perspiration. In our experience these reactions do not weaken or prostrate the patient, but leave him with a slower pulse, freer and easier respirations, and a reduced if not a normal temperature. At the same time the subjective symptoms of headache, muscle pain and mental depression are relieved in a marked degree.

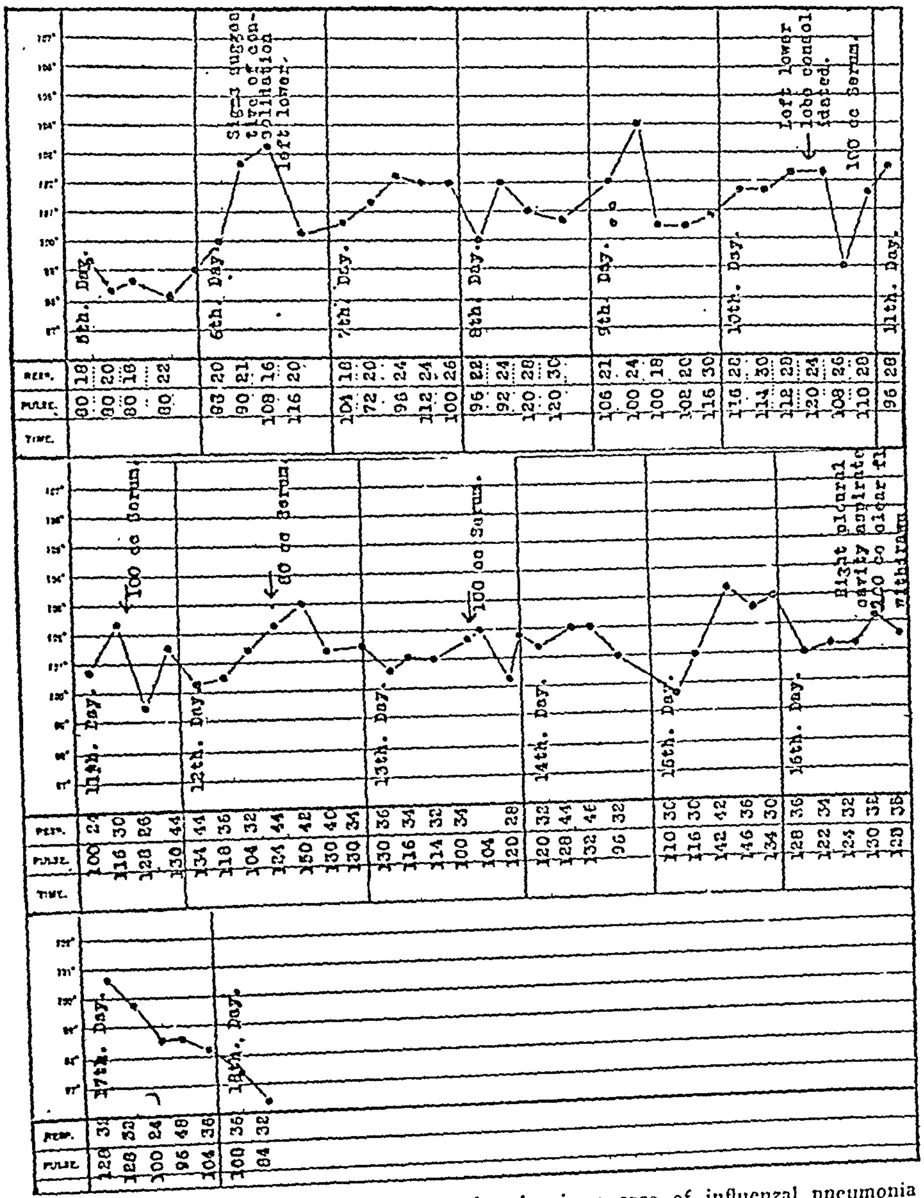

Chart 3.—Temperature, respiration and pulse in a case of influenzal pneumonia complicated by pleurisy with effusion.

Chart 1 is that of a nurse who refused the treatment until there was involvement of both lower lobes, and she was too ill to care what happened. In addition to other symptoms, she vomited constantly. Within two hours after she had received 80 c.c. of plasma, the temperature began to fall and the vomiting ceased. This relief lasted only eight hours, but a second injection (against which she was alert enough to protest strongly) was followed by cessation of vomiting and uneventful recovery.

One fourth of the cases show no reaction or only perspiration, yet get the same though perhaps less prompt results from treatment. Chart 2 is that of a pharmacist who would not give in to the infection until pneumonia developed, areas of consolidation were made out in both lower lobes, and the respiration rate was 32 per minute. Two doses were administered within a twelve-hour period. Almost immediately there was a complete change in the mental attitude and physical condition. At the end of twenty-four hours the temperature was normal. As expressed by the patient himself, a heavy weight seemed to be lifted off him in such a way as could only be appreciated by one who had experienced it. Again and again we have seen patients pass from the preliminary stage, after treatment, into sound sleep, like that of a child, to awake hours later feeling perfectly well, ready to eat anything.

Those pneumonias developing in the hospital and treated within forty-eight hours have shown the most clear-cut and striking results, due, we believe, to the neutralization of the toxin or toxins freeing natural forces to combat secondary invaders. In these cases the physical signs do not extend, but may persist for several days. In the terminal stages circulation is so poor and the lung involvement so extensive as to make this treatment uncertain and unsatisfactory because serious symptoms may be aggravated rather than relieved.

POTENCY OF PLASMA

In the first cases we injected only the compatible plasma; hence we were unable to pool that drawn from the various convalescents. With this procedure it was found that 25 per cent. of the plasma was very potent, 65 per cent. was moderately potent, and 10 per cent. was inactive. The plasma collected as late as thirty days after the temperature had become normal seems to be potent, as is also that of convalescents who were treated during their pneumonia.

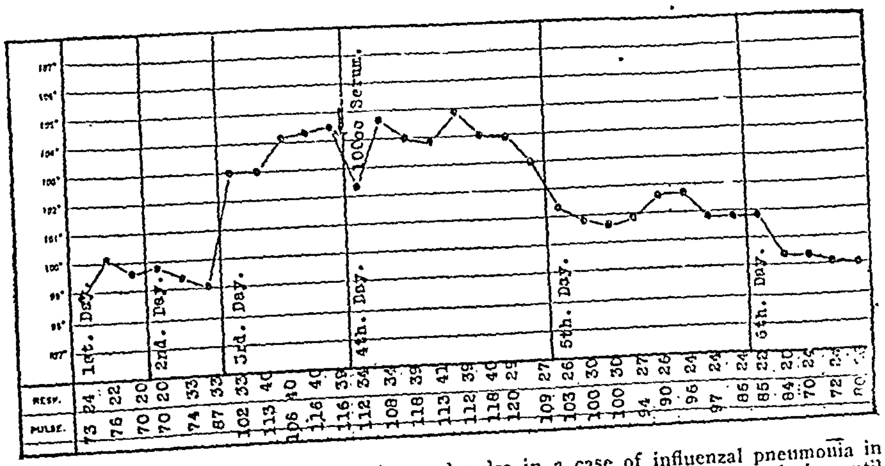

Chart 4.—Temperature, respiration and pulse in a case of influenzal pneumonia in a woman who was a superintendent of nurses and refused to give up her duties until prostrated. On the third day the temperature rose to 103, pulse 113, and respirations 40. Signs of pneumonic areas in the lower lobes of both lungs were made out. One hundred c.c. of serum were administered intramuscularly. During the next twenty-four hours the temperature fluctuated between 104 and 105, and then began falling by lysis, accompanied by improvement in both pulse and respiration. The patient was discharged on the twelfth day.

Agglutination and complement fixation tests with five strains of the influenza bacillus and twelve different serums were uniformly negative. Agglutination tests on Types I, II and III pneumococci were likewise negative. Unfortunately no such tests were made with the diplostreptococcus, which was present in many of the early cases.

RESULTS OF TREATMENT

Complications of any kind interfere markedly with recovery. Pleurisy, and particularly pleurisy with effusion, seems to neutralize the beneficial properties of the plasma. Chart 3 is that of a patient first treated five days after suggestive signs of pneumonia were made out. Each of four injections was followed by temporary improvement, but he grew weaker until the sixteenth day, when, following the aspiration of 200 c.c. of fluid from his right pleural cavity, the temperature dropped to normal and an uneventful recovery was made.

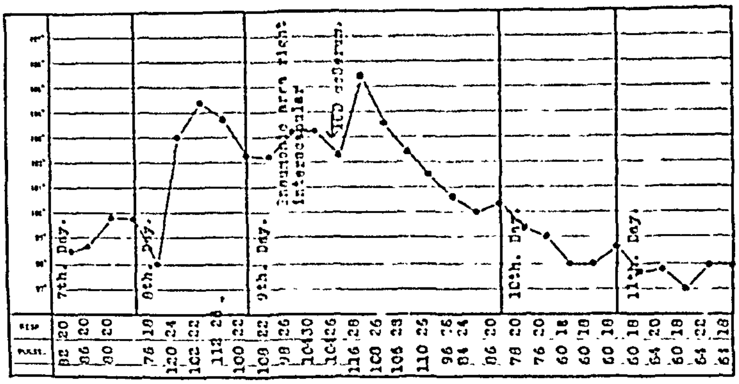

Chart 5.—Temperature, respiration and pulse in a case of influenzal pneumonia developing five days after temperature became normal.

Two of three fatal cases showed extensive fibrinous pleurisy with an effusion of about 200 c.c. of serosanguineous fluid, containing many pneumococci in each pleural cavity. The third case showed an encapsulated empyema on the left side from which Group I pneumococci were cultivated. One of the two patients mentioned above had a pneumococcus Type IV septicemia, the organism producing green coloration in different culture mediums. Treatment in all three cases was begun late, either because we did not see the cases until late or because definite signs of pneumonia were not made out until late.

Up to the present time, forty-six cases of influenzal pneumonia have been treated with three deaths resulting, making the mortality percentage 6.5. Of 111 patients untreated, twenty-eight died, giving a mortality percentage of 25.2, or about four times the percentage mortality among forty-six treated cases.

CONCLUSIONS

1. The toxemia of influenza seems to be neutralized by the plasma from convalescent patients.

2. Certain care being exercised, tests for compatibility are eliminated.

3. A large percentage of all plasma is active, and most satisfactory results are obtained by pooling the different lots.

4. Sharp reactions are followed by the most prompt improvement, but are not essential to success.

5. Pneumonia must be diagnosed early and treated immediately if a large percentage of recoveries are to be obtained.

OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE SPINE WITH GRAVE PARALYSES *

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It appears to be generally held that operation is contraindicated in recent gunshot wounds of the spine when there is complete or almost complete paralysis and sensory loss below the level of the cord injury. From a number of reported observations, however, it seems clear that paralysis ranging from slight to most extreme may be associated with wounds in the neighborhood of the spine without involvement either of bone or of dura. The hopeless destruction of the cord by the missile or by bone fragments can be determined without operative intervention in not a few cases, and in these operation is of no avail. There are many cases, on the other hand, in which such cord destruction cannot be shown unequivocally by roentgenographic and clinical examination and the study of the course of the missile, instances in which operation may reveal a partially severed, contused or compressed cord. Basing my opinion on several experiences with cases of this type, I believe that these patients should be given the benefit of doubt as to the completeness of the cord lesion, and that operation should be performed in the hope of encountering remediable conditions.

My special purpose in the present contribution is to discuss a group of cases of gunshot wound of the spine in which the dura is intact in the presence of complete or almost complete paralysis, the lesion in the cord being attributable to commotion or concussion or to both combined. In the fatal cases examination discloses either a diffuse or a focal necrosis in the affected part of the cord with a varying degree of surrounding edema. Sometimes all the cord elements are destroyed at this level, but more frequently greater or lesser portions remain intact. The presumption is that in the favorable cases, those in which functional recovery occurs to a varying degree, edema was a prominent element in the lesion. There is, then, a group of cases of gunshot wounds in the spinal region, with intact dura and with grave paralysis, in which the possibility of return of function exists. In injuries by shell fragments, the chances of recovery from the wound are greatly reduced or even entirely eliminated if a deep-seated wound infection is added to the cord lesion with its complications. In addition to the indirect effect on the cord of the type of injury in question, there may be fragments of bone or epidural clots directly compromising the dura, the removal of which would aid in recovery and reduce the likelihood of epidural infection. It is chiefly, however, for the elimination of infection, and not with the expectation of relieving pressure on the cord, that I believe prompt operation is indicated in these cases. This point of view received support in a series of spinal wounds under my care at British Casualty Clearing Station No. 17 last year. Of twenty-two patients with spinal wounds accompanied by manifestations of severe damage to the cord, four fell into the category of

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* From Mobile Hospital No. 2, A. E. F.

wounds with complete or almost complete paralysis and intact dura. Operations were performed within short periods of the time the wounds were inflicted. The subsequent course was satisfactory in all four cases. This cannot be ascribed to the operation on the spine in itself, but to the control or elimination of infection.

Concerning the technic of operation that was employed, little need be added to the details given in the case reports. The wounds were excised in the usual manner. When the roentgenographic examination showed fracture of the spines or laminae, or when an intradural hemorrhage was suspected, laminectomy was done. This was carried out in the typical way rather than by a piecemeal removal of loose or detached fragments of bone. I believe that the latter procedure, in the necessarily limited operative exposure and the distortion of landmarks, may inflict damage to the dura and possibly to the underlying cord. The dura was not opened in any of the cases in question, because there were no visible signs of a subdural lesion. After recent injuries, patients with serious cord damage are not good operative risks, and the operation should, therefore, be expeditiously performed; suitable instruments are important aids to this end.

The following are reports of the four cases of gunshot wounds of the spine in which paralysis was complete or almost complete, and in which the dura was found to be intact. The spinal column was fractured in three, but in only one of these was there any indication of direct pressure on the dura. There was no demonstrable bone injury in the fourth case. The follow-up notes are included in the case reports.

REPORT OF CASES

Case 1.—*Penetrating wound in the cervical region, with missile lodged between atlas and axis. Almost complete quadriplegia. Excision of tract and removal of foreign body. Progressive improvement.*

The patient, admitted, October 24, sixteen hours after being wounded, complained of loss of power in all four extremities, was unable to void, and had severe pain in both arms. The entry wound was a large, lacerated one in the left suprascapular region. There was profound weakness of both arms, the left being almost completely paralyzed; there was double wrist drop. All reflexes were absent except the right triceps. The abdominal reflexes were absent, the cremasterics sluggish. There was marked paresis of the right leg, almost complete paralysis of the left, double foot drop, and slight knee and ankle jerks. Detailed sensory examination was impossible because of the patient's restlessness and poor general condition; however, there appeared to be complete sensory loss up to the level of the fourth dorsal segment, and reduction in sensation from there to the third cervical. Roentgenographic examination revealed a large foreign body to the right of the midline and immediately above the body of the second cervical vertebra.

Operation, performed shortly after admission, consisted in excision of the entrance wound and tract. This crossed the midline above the third cervical spine without producing any bone injury. The tract ran deeply alongside the spinous process of the axis up to the foreign body lodged between the arch of the atlas and the body of the axis. The posterior atlanto-axial ligament was divided on the right side, but there was no evidence of epidural clot. The foreign body was removed and the wound sutured.

During the week's postoperative observation there was progressive improvement and power on the right side, slight on the left, and reduction of sensory disturbances; there was incomplete bladder control. A medical report three weeks later stated that the power was good in both legs and the right arm, and that movements were returning to the left arm; there were no areas of complete sensory loss; the bladder control was fair.

Subsequent reports described progressive improvement. The last report, eight months after operation, states that there is good power in both legs, the patient being able to walk short distances without assistance; the power in the right arm is almost normal, and the left arm is steadily improving; there is full control of bladder and bowels.

Case 2.—*Perforating wound of neck with fractures of spines and laminae of fifth and sixth vertebrae. Almost complete quadriplegia. Excision of tract, and laminectomy. Progressive improvement.*

The patient, admitted, November 8, forty-eight hours after being wounded, had been unconscious for about eighteen hours; he then found that his legs were paralyzed, his arms numb and weak, and that he was unable to void. The entrance wound was a small one in the left suprascapular region, the exit a large, ragged one in the right suprascapular fossa. There were slight movements at the left shoulder, slight flexion at the elbow, no extension, and complete wrist drop. Except for very slight rotation at the shoulder and flexion at the elbow, there were no movements in the right arm. The abdominal and cremasteric reflexes were absent. The right leg was completely paralyzed, and this was true for the left leg except for slight flexion and extension at the hip. The knee and ankle jerks were absent. Sensations were reduced from the fifth cervical to second dorsal segments, and lost from the latter level downward. Roentgenographic examination revealed a fracture of the body and laminae of the fifth cervical vertebra without in-driven fragments.

Operation, performed shortly after admission, consisted in a typical laminectomy. After separation of musculature through a median incision, the spinous processes of the fourth, fifth (fractured) and sixth cervical vertebrae were stripped free and removed. This was followed by removal of the corresponding laminae; there was considerable comminution of those of the fifth, and less of the sixth. None of the fragments impinged on the dura. This was found intact, of normal color, and without any suggestion of subdural injury. The tract was excised, the laminectomy wound closed, and the sites of entrance and exit drained.

Improvement occurred in the eight days' hospital observation. At the time of discharge there was partial bladder and good bowel control. Sensation had largely returned except over areas on both legs. There was fair motion and power at the left shoulder and elbow, and incomplete wrist drop; total right-sided wrist drop persisted, and the motions at the right elbow and shoulder were still very slight. All motions were present in the lower extremities, although to a very slight degree on the right side. The abdominal reflexes were sluggish, the cremasterics absent. Knee and ankle jerks, bilateral ankle clonus and the Babinski phenomenon were present. The laminectomy wound healed by primary union; the drained wounds were in satisfactory condition.

Reports on the subsequent course were received from the patient. There have been several setbacks, but improvement has been progressive. The last report, nine months after operation, describes tentative efforts at walking, good power but considerable stiffness in the legs, good power in the left arm, and fair power in the right.

Case 3.—*Penetrating wound of dorsal spine with missile lodged in thorax. Almost complete paraplegia. Laminectomy and partial excision of tract. Progressive improvement.*

The patient, admitted, November 12, seven hours after being wounded, had immediate paralysis and numbness of the legs following the injury, and was unable to void. There was a small lacerated entrance wound over the seventh dorsal spinous process. The general condition was poor. There were physical signs of a left-sided hemothorax, and profound paresis of both legs, more so on the left side, where there was very slight motion at the hip and knee, with none at the ankle and toes. Knee and ankle reflexes were present. Sensory disturbances of a somewhat Brown-Séquard character began at the level of the ninth dorsal segment. Roentgenographic examination revealed fluid in the left pleural cavity, and a small shell fragment to the left of the body of the eighth dorsal vertebra.

Operation was performed six hours after admission, when the general condition had somewhat improved. The entrance wound was excised, and a typical laminectomy performed. The spines and laminae of the seventh, eighth and ninth dorsal vertebrae were removed. There was a comminuted fracture of the left transverse process and lamina of the eighth, some of the loose fragments impinging on the dura. A small epidural clot was removed. Excision of the tract to the pleura was performed, further intrathoracic dissection being considered inadvisable owing to the general condition of the patient and the type of operative exposure required for access to the foreign body in this region. The wound was sutured in layers.

In the ten days' postoperative observation at the hospital, the wound healed by primary union, and complete bladder control returned. There was steady improvement in power and range of motion in the right lower extremity; there were slight motions at the left hip and knee, but none at the ankle or toes. There was reduction in the area of altered sensation.

Progressive improvement was reported from time to time. Five months after operation the patient was up and about with good power in the right leg and fair power in the left. The last report, seven months after operation, states that, except for slight weakness in the left leg, there is normal function in both legs.

Although it was an injury to the cauda equina, the following case is included because it presents the same picture of central injury with intact dura:

Case 4.—*Penetrating wound in lumbar region with missile lodged in front of vertebra. Paralysis of right leg. Laminectomy and excision of tract. Progressive improvement.*

The patient, admitted, October 19, six hours after being wounded, with loss of power in the legs, inability to void, and severe, shooting pains down the right thigh and the leg, had received a large, ragged wound in the right lumbar region. In the right leg slight motion was present at the knee and absent elsewhere; on the left side slight motions were present at the hip, knee and ankle. Both knee jerks were absent; the left ankle jerk was present, the right absent. All sensations were lost in the distribution of the fourth and fifth lumbar and first sacral roots. Roentgenographic examination revealed a large shell fragment anterior to the body of the third lumbar vertebra.

The first stage in the operation consisted in laminectomy, because it was thought from the roentgenographic examination that the foreign body had traversed the laminae. The third, fourth and fifth lumbar spines and laminae were removed, without any fracture being disclosed. The tract of the missile was then excised. The tract was found to pass through the body of the third lumbar vertebra. Loose bone fragments were removed; the foreign body could not be felt. The laminectomy wound was closed, and the remainder of the wound treated by Carrell-Dakin's method.

There was postoperative pneumonia. On examination from the hospital, ten days after operation, power in the left lower extremity was greatly improved; slight motions were present at all the joints of the right. There was improvement in sensation.

Discharge from the wound continued for several weeks, ceasing after removal of the foreign body and some bone fragments. Four months after operation the patient was able to walk with the aid of a cane, the left leg was normal, and power was much improved in the right. No subsequent report has been received.

Infant Breast Feeding.—It is of paramount importance to the future of this country that infant breast feeding should be maintained and extended. There must be no avoidable spilling of infant life. Every little stranger is now no longer a somewhat unwelcome intruder, but a precious commodity to be jealously guarded.—Sir James Crichton-Browne, *Journal of State Medicine,* May, 1918.

RÔLE OF THE BLOOD AND THE BONE MARROW IN CERTAIN FORMS OF GAS POISONING

I. PERIPHERAL BLOOD CHANGES AND THEIR SIGNIFICANCE

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Hematologic examinations made during the past ten months in a base hospital in France on certain gassed patients (mustard gas) offer strong evidence that the deleterious action of the poison on the blood and bone marrow is an important factor in prognosis in many cases.

The first change in the circulating blood—apparently due to a stimulus to the bone marrow—is an increase in the erythrocyte and leukocyte count, that naturally varies greatly with the severity of the gassing and the individual's reactive powers. In view of the disproportionate increase of red and white cells, change in Arneth scale, etc., the possibility of this being due to a greater concentration of the blood may safely be disregarded. The leukocyte rise (due to the polymorphonuclear elements) may be as high as 36,000 per cubic millimeter, and in the present series averaged 12,000. Enumeration of the lobes of the nuclei (Arneth count) shows at this time a shift of the Arneth scale to the left, that is, young polymorphonuclears are entering the blood stream. This increase of leukocytes soon disappears in the slightly gassed patients, the count gradually returning to normal, and in the severely gassed patients falling rapidly. The shift of the Arneth scale to the right at this period indicates an exhaustion of the leukocyte-forming centers. If death does not interrupt the downward course, an extreme degree of leukopenia (at the expense of the polymorphonuclears) may be reached. Thus the leukocyte counts of four fatal cases were observed to fall steadily from (1) 10,200 to 2,900; (2) 17,800 to 3,200; (3) 20,400 to 7,600, and (4) 36,000 to 14,000 per cubic millimeter. Postmortem examination of the femoral bone marrow reveals only a slight mottling, shown histologically to be due to primordial cells and megaloblasts, with a greater or less disappearance of normoblasts, myelocytes and adult forms. This has been interpreted as an inadequate attempt at blood regeneration, and the resulting lack of leukocytes in the blood stream may be considered to amount to an important weakening of the body defenses. Even in the bronchopneumonia that frequently supervenes in severely gassed patients, little or no reactive rise in leukocyte count is observed. In the accompanying table, only those cases are credited with bronchopneumonia, in which it was found at necropsy, and yet there are in it several instances in which leukopenia coincided with extensive bronchopneumonia. It is recognized, of course, that death may occur while moderate leukocytosis still exists; but a high leukocyte count should undoubtedly be considered a favorable item in the prognosis of a serious case of gassing.

In two cases of especial interest, leukocyte counts taken nine days after gassing showed the extraordinarily low counts of 570 (Harden) and 520 cells per cubic millimeter (Kerr), chiefly due to an almost total disappearance of polymorphonuclears. Both patients in ensuing daily counts showed a progressive rise with outpouring of myelocytes into the blood stream, but died with an extensive bronchopneumonia before the blood picture returned to normal. This may be interpreted as a partial recovery of the bone marrow from the initial insult, but not in time to help adequately to protect from the bronchopneumonia.

The question as to whether there is a real loss of leukocytes or a redistribution in the lungs at the expense of the blood stream must be taken into consideration, especially in view of the experimental work of Edkins and Tweedy[1] on gassed rabbits. The bronchopneumonic lungs and inflamed tubes have certainly shown the masses of leukocytes that are usually found in these conditions, so that, especially in view of the changes found in the bone marrow, the most probable hypothesis to explain the leukopenia in the blood stream would seem to be that the damaged source of supply was unable to furnish sufficient leukocytes for the local needs, and as well a superabundance in the blood, as it normally is able to do. In this connection also the myriads of organisms and relative lack of pus cells in the sputum is of interest.

The changes in the other elements of the blood are less striking; the initial rise in erythrocytes is later replaced by a moderate anemia (occasionally reaching below 4 millions). That this is due to lessened blood formation, rather than increased destruction, is shown by the normal condition of the plasma, absence of choluria, and of poikilocytes or blast cells in the blood stream.[2] In convalescent cases, the increased blood regeneration is shown by a distinct increase in the number of skeined cells, as well as the return of the leukocyte count to or slightly above normal. In the earlier stages at least the coagulation time of the blood is decreased and platelets appear very numerous and large on a film, though no actual counts have been made. In the later leukopenic stage, the platelets are much sparser, and in one case a coagulation time of seven minutes has been noted.

Attempts to apply this theory of damaged blood and bone marrow to the treatment of gassed patients have

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[1] Edkins, J. E., and Tweedy, N.: The Early Changes in Lungs by Gas Poisoning and Their Significance, Report 2, Chem. Warfare Med. Com., April, 1918.

[2] Pearce, R. M.; Krumbhaar, E. B., and Frazier, C. H.: The Spleen and Anaemia, Philadelphia, J. B. Lippincott Company, 1918.

BLOOD COUNTS OF GASSED PATIENTS

Case	Date Gassed	Date of Examination	Lots	Differential Count, per Cent.					R. B. C. in Mill.	Per Cent. Hb.	Miscellaneous
				Polymorphonuclears	Small Lymphocytes	Large Lymphocytes and Trans.	Eosinophils	Myelocytes			
1. H.	1917 7/21	1917 7/26	8,600	81	13	3	...	..	5.2	89	Coagulation time 2.2 min.; died 6 hours later
2. B.	7/21	7/26	9.600	87	12	1	...	..	4.6	90	Moderately severe case
		8/ 1	9,600	..	..	..	...	..	5.2	..	Much better; evac. to Eng. 8/12
3. V.	7/21	7/26	10,200	94	4	2	...	..	4.1	90	Severe
		7/28	5,600	63	31	5	(mast 1)	..	4.7	..	Toxic psychosis
		7/30	2,900	24	61	6	(mast 1)	6	4.1	..	Died same day; no bron. pneu.
4. L.	7/21	7/26	6,000	84	14	2	...	..	4.7	81	Very toxic; died 8/1 br. pneu.
5. S.	7/21	7/26	10,600	77	20	3	...	..	5.3	95	Mild
		8/ 1	12,600	82	10	5	...	3	...	..	Much better; evac. to Eng. 8/10
6. C.	7/21	7/26	9,000	86	11	3	...	..	4.2	97	Mild case
7. G.	7/21	7/26	8,000	53	33	14	...	..	5.0	92	Very mild; evac. to Eng. 8/15
8. B.	7/21	7/26	12,400	..	..	..	...	..	3.8	..	Severe; evac. to Eng. 8/6
9. H.	7/21	7/26	9,000	..	..	..	...	..	5.7	..	Severe
10. S.	7/21	7/27	6,000	85	14	1	...	..	3.6	..	Severe; delirious; evac. Eng. 8/13
11. W.	7/21	7/27	20,800	93	4	7	...	..	3.0	..	Severe; died 7/30 lob. pneu.
12. L.	7/21	7/27	9,600	..	..	..	...	..	4.7	..	Severe; died 7/30
13. G.	7/21	7/27	10,800	..	..	..	...	..	4.9	..	Moderate
14. S.	9/29	10/15	10,000	..	..	..	...	..	4.8	..	Coag. time 2.3 min.; no br. pneu.
		10/30	12,800	..	..	..	...	..	5.0	..	Better
		11/ 3	8,800	73	21	5	1	..	4.3	..	Better; evac. to Eng. 11/9
15. B.	10/ 3	10/15	10,800	82	16	2	...	..	3.8	..	Arneth count: 1 lobe, 8 per cent.; 2, 14; 3, 32; 4, 32; 5, 14; slight shift to right
		11/ 1	9,000	..	..	..	...	..	...	..	Improved; evac. to Eng. 11/9
16. B.	10/17	11/ 3	16,000	..	..	..	...	..	4.7	..	Worked for 6 days after gassing; died 11/9 lob. pneu.
17. S.	10/12	11/ 3	6,200	..	..	..	...	..	...	..	Mild; did well until 10-31, then tuberc.; evac to Eng. 11/15
18. O.	10/12	10/15	11,000	72	16	8	4	..	5.1	..	Coag. time 1.4 min.; Arneth 1, 0; 2, 22; 3, 24; 4, 38; 5, 16; i. e., shift to right
		10/20	7,000	..	..	..	...	..	5.0		
		10/30	8,000								
		11/ 3	9,400	..	..	..	...	..	...	..	Evac. to Eng. 11/9
19. C.	12/ 1	12/ 6	6,100	76	20	4	...	..	4.5	..	Died 12/8; early br. pneu.
20. K.	....	12/ 9	5,600	65	28	6	...	1	3.9		Severe; coag. time 3 min.
21. H.	11/30	12/ 9	570	10	70	20	...	..	3.6	..	Coag. time 7 min.; no skein cells
		12/10	1,400	20	64	12	...	4	3.5	..	Died 12/12; much br. pneu. at necropsy
		12/11	2,075	52	23	12	...	13	3.5	..	
22. E.	1918 1/23	1918 1/28	12,700	84.5	9	6.5	...	..	5.0	..	Shift of Arneth scale to left
		1/30	16,400	80	12	8	2	..	...	..	Died 2/1 br. pneu.
23. S.	3/11	3/13	11,400	..	..	..	...	..	...	..	Mild; evac. 3/24
24. T.	3/11	3/13	8,400	..	..	..	...	..	...	..	Mild; evac. 3/16
25. C.	3/12	3/13	12,400	..	..	..	...	..	4.5	..	Mild; evac.
26. A.	3/12	3/13	12,800	..	..	..	...	..	...	..	Mild; no burns; evac. 3/26
27. S.	3/12	3/13	7,600	..	..	..	...	..	4.4	..	Mild; no burns
28. M.	3/12	3/13	14,000	..	..	..	...	..	...	..	Moderate; sl. burns; evac. 3/23
29. S.	3/12	3/13	18,800	..	..	..	...	..	...	..	Moderate; no burns; evac. 3/16
30. B.	3/12	3/13	12,200	..	..	..	...	..	...	..	Mild; no burns; evac. 3/16
31. B.	3/12	3/13	16,800	..	..	..	...	..	...	..	Moderate; much cough; evac. 3/16
32. K.	3/12	3/13	7,200	..	..	..	...	..	...	..	Moderate burns; evac. 3/26
33. J. T. S.	3/12	3/13	19,400	..	..	..	...	..	...	..	Severe; bad cough; died next day
34. G.	3/12	3/13	17,800	..	..	..	...	..	...	..	Severe; bad cough
		3/14	13,200								
		3/15	11,400	..	..	..	...	..	4.7	..	Now has br. pneu.
		3/17	3,200	81	4	10	...	2	...	..	Arneth: 1, 2; 2, 18; 3, 32; 4, 26; 5, 22; died 3/19 br. and lob. pn.

BLOOD COUNTS OF GASSED PATIENTS—*Continued*

Case		Date Gassed	Date of Examination	Leuks	Differential Count, per Cent.					R. B. C. in Mill.	Per Cent. Hb.	Miscellaneous
					Polymorphonuclears	Small Lymphocytes	Large Lymphocytes and Trans.	Eosinophils	Myelocytes			
35.	C.	3/12	3/13	23,000	..	..	..	...	..	5.6	..	Severe D. I.
			3/15	10,000	87	12	1	...	..	5.2		
			3/17	7,400	74	11	13	...	2	...	..	Arneth: 1, 4; 2, 32; 3, 42; 4, 20; 5, 2 (i.e. nor); Arneth: 1, 12; 2, 26; 3, 52; 4, 8; 5, 2 (sl. to left) i.e. bone marrow reacting; pleurisy
			3/20	9,600	57	22	21					
			3/27	18,000								
			3/28	12,700								
36.	G.	3/11	3/13	5,800	..	..	..	...	..	4.2	..	Moderate
			3/15	6,400	65	23	12	...	..	3.8		
			3/22	7,500	71	23	6	...	..	...	..	Improved; evac. to Eng. 3/26
37.	B.	3/11	3/15	11,400	90	4	6	...	..	5.0	..	Moderate
			3/22	8,800	76	18	6	...	..	5.0	..	Improved; evac. to Eng. 3/28
38.	S.	3/12	3/13	17,000	..	..	..	...	..	...	..	Moderate
			3/15	16,000	..	..	..	...	..	...	..	Evac to Eng. 3/20
39.	W.	3/12	3/13	9,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/20
40.	G.	3/12	3/13	20,000	..	..	..	...	..	...	..	Severe
			3/15	14,000	..	..	..	...	..	...	..	Much imp.; evac. to Eng. 3/22
41.	H.	3/12	3/13	14,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/22; improved
42.	R.	3/12	3/15	18,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/28
43.	L.	3/12	3/13	10,000	..	..	..	...	..	...	..	Mild; evac to Eng. 3/16
44.	H.	3/11	3/13	11,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/22
45.	H.	3/11	3/13	16,000	..	..	..	...	..	...	..	Moderate; evac. to Rouen 3/31
46.	N.	3/12	3/13	12,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/16
47.	D.	3/11	3/13	15,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/22
48.	S.	3/11	3/13	9,400	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/22
49.	M.	3/11	3/13	14,000	..	.	..	...	..	...	..	Mild; evac. to Eng. 3/22
50.	M.	3/11	3/13	13,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/22
51.	C.	3/13	3/15	20,400	95	3	2	...	..	...	..	D. I.; Arneth: 1, 16; 2, 50; 3, 26; 4, 8 (to left); died 3/20 br. pneu.
			3/20	7,800								
52.	P.	3/13	3/15	13,400	84	8	8	...	..	...	..	D. I.; evac. to Eng. 3/23; impr.
53.	P.	3/13	3/20	12,400	83	9	8	...	..	4.6	..	D. I.; br. and lob. pneu.; died 3/21
54.	P.	4/18	4/20	26,000	91	7	2	...	..	4.1	..	S. I.; delirious
			4/24	11,000	..	..	..	...	..	...	..	Died 4/28 br. pneu.
55.	S.	5/10	5/18	18,000	..	..	..	...	..	...	..	Died 2 hrs. after bleeding, 5/18; cong. and edema; no br. pneu.
56.	W.	5/10	5/18	5,600	..	..	..	...	..	...	..	Severe
			5/20	4,000	..	..	..	...	..	...	..	Died 5/22; ext. br. pneu.
57.	M.	5/11	5/18	14,000	..	..	..	...	..	...	..	D. I.
			5/19	8,700	..	..	..	...	..	...	..	Getting better
			5/28	13,000	..	..	..	...	..	...	..	Developed bro. pneu. and gangrene of lung; died 6/1
			5/29	16,000								
			5/31	8,000								
58.	R.	5/14	6/ 2	8,500	..	..	..	...	..	...	..	Mild
59.	B.	5/20	6/ 2	8,000	..	..	..	...	..	...	..	Mild
60.	P.	5/20	5/20	6,700	..	..	..	...	..	...	..	D. I.; bad pulse; died 5/21 br. pneu.
61.	T.	5/12	5/29	18,000	..	..	..	...	..	...	..	Badly gassed but doing well
			5/31	13,000	..	..	..	...	..	...	..	Bronchopneumonia
			6/ 2	12,000	..	..	..	...	..	...	..	Evac. to Eng. 6/2
62.	K.	5/20	5/28	640	10	35	5	(Turk) (50)	..	...	..	Severe; burns bad; no br. pneu.
			5/29	520	10	60	10	(20)				
			5/30	1,200	4	6	4	(2)	84	...	..	Failing
			5/31	5,400*	1	2	5	(1)	91	...	..	Died same even.; much br. pneu.

* 100 counts.

so far not seemed practical. The so-called bone marrow simulants would hardly seem apropos, with the factory out of gear and an intense stimulus probably already being furnished from the respiratory tract. Blood transfusions or leukocytic injections are impracticable on any extensive scale, and the preparation of extracts of animal leukocytes has not been possible. Any method of treatment, however, that would give promise of replenishing some of the lost protective power of leukocytes would seem well worth trial.

SUMMARY

1. Certain forms of gas poisoning cause, after an initial leukocytosis, a more or less extreme degree of leukopenia.

2. This usually persists even in the presence of bronchopneumonia and is very probably an important contributing factor to the high mortality of severe cases.

3. If the leukocyte count falls below 1,000 per cubic millimeter, a "myelocyte crisis" may bring about a partial amelioration; but in the two cases observed of this kind, this did not serve to protect from a fatal outcome.

4. Lessened blood formation is also indicated by the production of anemia without blast cell formation and diminution in the number of blood platelets. In the earlier stages the coagulation time is decreased, and in the later stages of severe cases it is increased.

Barbed Wire Disease.—Vischer (*Cor.-Bl. f. schweiz. Aerzte*, Sept. 28, 1918) has described a peculiar psychosis of war prisoners in all camps, including those interned as civilian aliens. The prisoners themselves have coined the term "barbed wire disease" for this trouble, and to those affected it is said the barbed wire within which they are inclosed acts as a red rag to a bull. At first after internment there are peculiar reactions due to shutting off of the outside world and mingling in close communion. The phase is one of stimulation. Men argue, become quarrelsome and envious, egosim is fostered. There is a rage for games. Gradually the picture changes to one of depression. Especially among the more finely organized, a state of apathy develops. One is no longer able to concentrate on anything. Even music becomes undesirable. The mental state resembles in some ways the so-called cafardism which was first noted before the war in the French foreign legionaries, and thus perhaps light is thrown on the motivation of that mysterious affection. Sleep is disturbed by dreams and there is an abnormal sensitiveness to sounds. Only a small percentage remain immune. The barbed wire acts throughout as the badge and symbol of servitude. The part played by the wire appears to be shown by the fact that prisoners who work in small squads in the open under guard do not develop the disease.

disappearance of polymorphonuclears. Both patients in ensuing daily counts showed a progressive rise with outpouring of myelocytes into the blood stream, but died with an extensive bronchopneumonia before the blood picture returned to normal. This may be interpreted as a partial recovery of the bone marrow from the initial insult, but not in time to help adequately to protect from the bronchopneumonia.

The question as to whether there is a real loss of leukocytes or a redistribution in the lungs at the expense of the blood stream must be taken into consideration, especially in view of the experimental work of Edkins and Tweedy[1] on gassed rabbits. The bronchopneumonic lungs and inflamed tubes have certainly shown the masses of leukocytes that are usually found in these conditions, so that, especially in view of the changes found in the bone marrow, the most probable hypothesis to explain the leukopenia in the blood stream would seem to be that the damaged source of supply was unable to furnish sufficient leukocytes for the local needs, and as well a superabundance in the blood, as it normally is able to do. In this connection also the myriads of organisms and relative lack of pus cells in the sputum is of interest.

The changes in the other elements of the blood are less striking; the initial rise in erythrocytes is later replaced by a moderate anemia (occasionally reaching below 4 millions). That this is due to lessened blood formation, rather than increased destruction, is shown by the normal condition of the plasma, absence of choluria, and of poikilocytes or blast cells in the blood stream.[2] In convalescent cases, the increased blood regeneration is shown by a distinct increase in the number of skeined cells, as well as the return of the leukocyte count to or slightly above normal. In the earlier stages at least the coagulation time of the blood is decreased and platelets appear very numerous and large on a film, though no actual counts have been made. In the later leukopenic stage, the platelets are much sparser, and in one case a coagulation time of seven minutes has been noted.

Attempts to apply this theory of damaged blood and bone marrow to the treatment of gassed patients have

BLOOD COUNTS OF GASSED PATIENTS

Case		Date Gassed	Date of Examination	Lots	Differential Count, per Cent.					R. B. C. in Mill.	Per Cent. Hb.	Miscellaneous
					Polymorphonuclears	Small Lymphocytes	Large Lymphocytes and Trans.	Eosinophils	Myelocytes			
1.	H.	1917 7/21	1917 7/26	8,600	84	13	3	...	..	5.2	89	Coagulation time 2.2 min.; died 6 hours later
2.	B.	7/21	7/26	9,600	87	12	1	...	..	4.6	90	Moderately severe case
			8/ 1	9,600	..	..	..	...	..	5.2	..	Much better; evac. to Eng. 8/12
3.	V.	7/21	7/26	10,200	94	4	2	...	..	4.1	90	Severe
			7/28	5,600	63	31	5	(mast 1)	..	4.7	..	Toxic psychosis
			7/30	2,900	24	61	6	(mast 1)	6	4.1	..	Died same day; no bron. pneu.
4.	L.	7/21	7/26	6,000	84	14	2	...	..	4.7	81	Very toxic; died 8/1 br. pneu.
5.	S.	7/21	7/26	10,600	77	20	3	...	..	5.3	95	Mild
			8/ 1	12,600	82	10	5	...	3	...	..	Much better; evac. to Eng. 8/10
6.	C.	7/21	7/26	9,000	86	11	3	...	..	4.2	97	Mild case
7.	G.	7/21	7/26	8,000	53	33	14	...	..	5.0	92	Very mild; evac. to Eng. 8/15
8.	B.	7/21	7/26	12,400	..	..	..	...	..	3.8	..	Severe; evac. to Eng. 8/6
9.	H.	7/21	7/26	9,000	..	..	..	...	..	5.7	..	Severe
10.	S.	7/21	7/27	6,000	85	14	1	...	..	3.6	..	Severe; delirious; evac. Eng. 8/13
11.	W.	7/21	7/27	20,800	93	4	7	...	..	3.0	..	Severe; died 7/30 lob. pneu.
12.	L.	7/21	7/27	9,600	..	..	..	...	..	4.7	..	Severe; died 7/30
13.	G.	7/21	7/27	10,800	..	..	..	...	..	4.9	..	Moderate
14.	S.	9/29	10/15	10,000	..	..	..	...	..	4.8	..	Cong. time 2.3 min.; no br. pneu.
			10/30	12,800	..	..	..	...	..	5.0	..	Better
			11/ 3	8,800	73	21	5	1	..	4.3	..	Better; evac. to Eng. 11/9
15.	B.	10/ 3	10/15	10,800	82	16	2	...	..	3.8	..	Arneth count: 1 lobe, 8 per cent.; 2, 14; 3, 32; 4, 32; 5, 14; slight shift to right
			11/ 1	9,000	..	..	..	...	..	...	..	Improved; evac. to Eng. 11/9
16.	B.	10/17	11/ 3	16,000	..	..	..	...	..	4.7	..	Worked for 6 days after gassing; died 11/9 lob. pneu.
17.	S.	10/12	11/ 3	6,200	..	..	..	...	..	...	..	Mild; did well until 10-31, then tuberc.; evac to Eng. 11/15
18.	O.	10/12	10/15	11,000	72	16	8	4	..	5.1	..	Cong. time 1.4 min.; Arneth 1, 0; 2, 22; 3, 24; 4, 38; 5, 16; i. e., shift to right
			10/20	7,000	..	..	..	...	..	5.0		
			10/30	8,000						...	..	Evac. to Eng. 11/9
			11/ 3	9,400	..	..	..	...	..	4.5	..	Died 12/8; early br. pneu.
19.	C.	12/ 1	12/ 6	6,100	76	20	4	...	..	3.9		Severe; coag. time 3 min.
20.	K.	....	12/ 9	5,600	65	28	6	...	1	3.6	..	Cong. time 7 min.; no skein cells
21.	H.	11/30	12/ 9	570	10	70	20	...	..	3.5	..	Died 12/12; much br. pneu. at necropsy
			12/10	1,400	20	64	12	...	4	3.5	..	
			12/11	2,075	52	23	12	...	13	5.0	..	Shift of Arneth scale to left
22.	E.	1918 1/23	1918 1/28	12,700	84.5	9	6.5	...	..	...	..	Died 2/1 br. pneu.
			1/30	16,400	80	12	8	2	..	...	..	
23.	S.	3/11	3/13	11,400	..	..	..	...	..	...	..	Mild; evac. 3/24
24.	T.	3/11	3/13	8,400	..	..	..	...	..	4.5	..	Mild; evac. 3/16
25.	C.	3/12	3/13	12,400	..	..	..	...	..	...	..	Mild; evac.
26.	A.	3/12	3/13	12,800	..	..	..	...	..	4.4	..	Mild; no burns; evac. 3/26
27.	S.	3/12	3/13	7,600	..	..	..	...	..	...	..	Mild; no burns
28.	M.	3/12	3/13	14,000	..	..	..	...	..	...	..	Moderate; sl. burns; evac. 3/23
29.	S.	3/12	3/13	18,800	..	..	..	...	..	...	..	Moderate; no burns; evac. 3/16
30.	B.	3/12	3/13	12,200	..	..	..	...	..	...	..	Mild; no burns; evac. 3/16
31.	B.	3/12	3/13	16,800	..	..	..	...	..	...	..	Moderate; much cough; evac. 3/16
32.	K.	3/12	3/13	7,200	..	..	..	...	..	...	..	Moderate burns; evac. 3/26
33.	J. T. S.	3/12	3/13	19,400	..	..	..	...	..	...	..	Severe; bad cough; died next day
34.	G.	3/12	3/13	17,800	..	..	..	...	..	4.7	..	Severe; bad cough
			3/14	13,200						...	..	
			3/15	11,400	..	..	..	...	..			Now has br. pneu.
			3/17	3,200	84	4	10	...	2			Arneth: 1, 2; 2, 18; 3, 32; 4, 26; 5, 22; died 3/19 br. and lob. pn.

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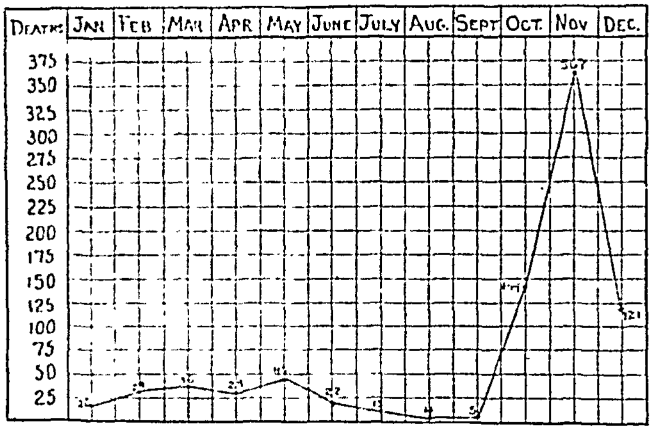
[1] Edkins, J. E., and Tweedy, N.: The Early Changes in Lungs by Gas Poisoning and Their Significance, Report 2, Chem. Warfare Med. Com., April, 1918.

[2] Pearce, R. M.; Krumbhaar, E. B., and Frazier, C. H.: The Spleen and Anaemia, Philadelphia, J. B. Lippincott Company, 1918.

myocarditis, homicide, anemia and dilatation of the heart, each 15; cirrhosis of liver, 14; kidney disease (unclassified), 13; gastritis, 11, and many other diseases less than 10.

Influenza-Pneumonia.—The most notable factor in the deaths of the year is the enormous increase in deaths from pneumonia, and especially from those from pneumonia following influenza. During the years from 1902 to 1917, inclusive, the percentage of deaths from pneumonia to the total deaths varied from 5.62, the low mark, in 1914, to 9.47, the high mark, in 1916. With the opening of the year 1918, however, there was an increase in the deaths from pneumonia, so that for the first nine months of the year the percentage was 12.5. The enormous increase occurred in the last three months of the year, which brought the percentage of deaths from pneumonia and influenza for 1918 up to 30.69, an unprecedented mortality.

Accident.—The causes assigned for the 89 deaths from accident were: automobile, 24; automobile-railway (grade crossing), 16; falls, 10; railway, 8; poison, 4; in conflagrations, drowning, sunstroke and unclassified accidents, each 3; burns, injuries by animals and explosion, each 2; and roentgen-ray burns, inhalation of poisonous gases, fracture, freezing, lightning, starvation, firearms, injuries in mine, crushing and asphyxia, each one. The 39 physicians who ended their lives by suicide selected the following methods: firearms, 20; poison and cutting instruments, each 6; strangulation, 3; asphyxia, drowning, jumping from high places, and unclassified, each 1. Of the 15 homicides, 11 were due to firearms; 3 to causes not stated, and one was due to cutting instruments.



Deaths of physicians from influenza and pneumonia during 1918.

Military Service.—During the year, one physician died who had served in the Mexican War; 165 were veterans of the Civil War, and of these, 37 had followed the fortunes of the Confederacy, and 44 had been medical officers of United States Volunteers. The Medical Corps of the Army lost 253 officers; 13 had been contract or acting assistant surgeons. The Navy lost 35 medical officers and 4 acting assistant surgeons; the Public Health Service, 10; the Indian Service, 5, and the organized militia, 33, of whom 5 had attained the grade of Surgeon-General.

Civil Positions.—Of those who died, 2 had been members of Congress; one, an ambassador; 2, consuls; 4, members of state senates; 24, members of the lower houses of legislatures; and 33 had been mayors; 20 had been members of state boards of health; 10 of state boards of medical examiners, and 7 members of other state boards.

Association Fellowship.—Of the 994 Fellows of the American Medical Association who died during 1918, one had been Vice President; one, a member of the House of Delegates; 2, members of the Committee on Medical Legislation; one, a member of the Judicial Council; 5, section officers, and one a member of the Board of Trustees.

THE HEALTH OF THE ARMY

The report of the Surgeon-General of the Army covering the calendar year of 1917 and the fiscal year to June 30, 1918, has just appeared. Naturally it is a much larger volume than any previous report. It is divided into eight sections with some 181 general tables, twenty-one special tables, ten international tables and seventy-three charts. This is a compilation of data which required great effort and adequate organization. In the letter of transmittal, special attention is called to the three training schools for medical officers which aided in rapidly building up an efficient medical department for the great army created by the war. The health of the Army both at home and overseas was excellent, and the death rates probably lower than in any other similar body of troops in the history of warfare. As an evidence of the way in which typhoid fever has been eliminated from the Army, it is stated that there were 297 cases and twenty-three deaths during the year 1917. If the morbidity had been as great as during the Spanish-American War, there would have been 136,000 cases and 13,600 deaths. It was seen before the troops had been mobilized that the acute respiratory diseases would be the greatest factors in morbidity and mortality, and every possible effort was made to prevent their incidence. The rapid mobilization, however, made it impossible to secure the desired results. Pneumonia, either primary or secondary, caused approximately 65 per cent. of the deaths from all causes in the troops in the United States in 1917. A large number of the pneumonias have been charged to measles, which was epidemic during that year.

The second section is a comparative study of the health of our army from 1820 through 1917. This includes a comprehensive analysis of the health of the Army according to race, location, age, length of service and rank, and a good analysis of the causes of death. It is interesting to note that in 1916 there were twenty-two causes of death, and in 1917 only eight, each of which produced at least 1 per cent. of all the deaths of the year. Of the eight leading causes of death in 1917, five are of an epidemic character, and measles is the most important. In 1916, measles is eleventh on the list of causes of death, that is, 3.3 per cent., as contrasted with first place and 29.9 per cent. in 1917. Most of the deaths from measles were, of course, from the complicating pneumonia.

A large section of the book is concerned with the mobilization of the Army. Our readers are already familiar with the tremendous growth of the Medical Department. Today this department alone is larger than was the entire army at the outbreak of the Spanish-American War. In this section is included a description of each of the great camps and cantonments, with a discussion as to health conditions and the factors especially related to those camps. Here also is described the organization of the base hospitals in the cantonments. The fourth section concerns the health of the Army by countries in which different units were located, and the fifth section, special diseases in the Army, with numerous charts showing how measles, the pneumonias, venereal diseases and other infections were brought under control. A special section is devoted to a consideration of fractures.

The sixth section, on the activities of the Medical Department, describes in detail the organization and the work of each department of the Army, including the handling of infectious diseases, sanitation and construction of hospitals, the work of the gas division, the work of the Army medical laboratory, and the special divisions in the Surgeon-General's Office. Section H is the financial report, showing how more than $100,000,000 was spent.

To those who have been interested in tracing the development of the Medical Department and the great service it has rendered to the government, the report will be an interesting and enlightening document. It should be of permanent value to hygienists, sanitarians and to others interested in the control of disease.

PROPHYLACTIC INOCULATION AGAINST INFLUENZA

Experiment is the life of natural science. The primary condition of progress is that one must be eternally questioning, testing, trying out new ideas and methods—in the old-fashioned phrase, "interrogating Nature." The successful investigator ceaselessly observes, theorizes and formulates experiments to verify his hypotheses. To experiment is of the essence of our faith.

As investigators know, however, it is not easy to plan and conduct an experiment in such a way that the results are unambiguous. Even in the purely physical sciences the elimination of all factors except the one whose action we wish to study is not always a simple matter. In the biologic sciences and especially in human medicine, conditions are usually so complex and the multiplicity of factors so great that the study of any particular factor is often fraught with great difficulty. Any one familiar with the history of the numerous attempts made in the past twenty years to use specific and nonspecific serums and vaccines knows of the countless wrecks of well meant endeavor and patient industry that lie high, dry and forgotten on the rocks of fact. No one of us believes for a moment that on this account we should slacken our effort or abate our enthusiasm. The success already achieved in the prophylaxis and treatment of several infectious diseases is enough to spur us on to fresh trials and new modes of experiment.

At the same time we have a right to ask that experiments in this field, where so much is at stake, where our hold on the confidence of the general public is involved, and where self deception is peculiarly liable to occur, be planned and carried out with as much precision and critical acumen as possible, so that proper conclusions may be drawn and the whole matter not left fogged with uncertainty. The trouble with so much of the "evidence" on the use of vaccines for the prevention of influenza—as stated in the recent report of the Committee of the American Public Health Association—is not that it is "contradictory and irreconcilable," but that it is not evidence at all; the pertinent facts are not collected and evaluated in such a way as to constitute solid grounds for either a favorable or unfavorable opinion. That is the real reason why confusion and uncertainty today surround much of the reported work on the prophylactic inoculation against influenza: the data presented are simply too inadequate to permit a competent judgment.

To what extent these considerations apply to an important article[1] presented in The Journal this week must be decided by each reader for himself. It may be questioned, perhaps, whether the greater receptivity for positive rather than negative results shown in the phrase, "because, after all, the results from prophylactic inoculation must be sufficiently favorable to be apparent under the conditions included in this report," is justified in an inquiry demanding such a rigorously critical attitude as the one in hand. Positive results are certainly more gratifying to the average investigator than negative; all the more reason, therefore, why he should hold himself a little stiffly and be ever on his guard against an uncritical acceptance of a desired fact.

To be more specific, one could wish that definite statements might be made in place of vague and general statements, that the readers might be taken more fully into the confidence of the writer with respect to seeing for themselves those data on which he bases his conclusions. When we read: "This difference has been noted in communities in which the incidence and mortality rate were exceptionally high as well as where they were comparatively low," we want to ask: What were the communities and what was the population, what the incidence and what the mortality rate; where and to how many was the vaccine given, and what were actually the results?

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[1] Rosenow, E. C.: *Prophylactic Inoculation Against Respiratory Infections*, this issue, p. 31.

It is not quite clear from Rosenow's article just what his position really is with respect to the effect of his vaccine in warding off initial attacks of influenza. Although, at the beginning of the paper, he seems to regard the vaccine as a means of increasing individual resistance to the secondary infections that follow in the wake of the primary influenza, later on, as in referring to the State Hospital for the Insane at Rochester, he attributes to it the virtue of preventing the primary infection.

There are other points of detail about which the curious reader will want further information. He will want to know dates, places, ages and population inoculated and uninoculated; he will want to know something about the clinical basis of diagnosis, the proportion of pneumonias, the conditions of exposure, and especially the measures taken to prevent influenza infection and to prevent the development of pneumonia in each group chosen. To specify only one case: The experience at a Rochester hospital—where fourteen nurses (out of how many?) developed influenza within two days (how many earlier?) prior to the first inoculation (at what period in the epidemic?), and only one case (out of how many possibilities?) developed subsequently during a period of six weeks—might be duplicated, so far as the facts given are concerned, in the experience of other observers using no vaccines whatever. In other words, unless all the cards are on the table, unless we know so far as possible all the factors that may conceivably influence the results, we cannot have a satisfactory basis for determining whether or not the results of prophylactic inoculation against influenza justify the interpretation they have received in some quarters.

A Municipal Poultry Farm.—The health committee of the city of Bradford, England, according to U. S. Consul A. E. Ingram (*Commerce Reports,* Jan. 15, 1918), in May, 1916, established a municipal poultry farm to meet the demands of the hospitals and other medical institutions maintained by the municipality. It is situated on the farm of the Bierley Hall Sanatorium for consumptives, covers 6 acres and comprises about fifty buildings, with 800 birds of the standard egg breeds, and is fully equipped for poultry and egg producing purposes according to the latest scientific ideas. The surplus accumulations of eggs are preserved by the waterglass process. The initial outlay was about $10,000, and it is found that the cost of running the plant will amount to about the same sum annually. It is expected that the egg production will reach 80,000 a year.

Current Comment

"EVIDENCE"

> "I have used between 700 and 800 doses of The Cutter Laboratory's Mixed Vaccine-Respiratory Infections as a prophylactic against Influenza, and in not one instance has there been a failure completely to protect the individuals so immunized."

This testimonial heads a postal card distributed widely to physicians by the Cutter Laboratory, which claims that the statement is "by one of San Francisco's best known physicians." The Cutter Laboratory is of the opinion that the statement "is convincing enough to satisfy even the most conservative as to the value of Mixed Vaccine prophylaxis in this class of infections." Let us extend the method of argument:

> "I have recomended to 643 of my patients that, as a prophylactic against *Influenza, they use a teaspoonful of salt instead* of two lumps of sugar in their coffee every morning, and in not one instance has one of these patients come down with the disease."

Then might not the salt producers of the country say that the statement just given, having supposititiously come from one of New York's best-known physicians, is convincing enough to satisfy even the most conservative as to the value of sodium chlorid as a prophylactic in influenza? The science of therapeutics is complex enough at its best. With commercialism dominating the production of therapeutic agents, the likelihood of ever arriving at anything even approximating a true science of therapeutics seems hopeless. If there were as much money to be made in astronomy as there is in pharmacy, there would be a new star discovered every day.

AUTOTOXEMIA

Few physicians ever question the ancient therapeutic axiom, "Bene curat qui bene laxat." The administration of a laxative or cathartic at the onset of an illness constitutes the chief hope of the layman and the auxiliary measure of the physician in effecting a rapid cure. This is based on the assumption that opening up the chief emunctory of the body sweeps out the poisonous products ingested or formed by action of the intestinal flora on nitrogenous food, preventing them from exerting their toxic action on the various organs and tissues of the body. That the symptoms of intestinal stasis and constipation are those of an intoxication or autotoxemia resulting from an absorption from the intestinal tract of the poisonous products of bacterial activity is supposedly so well established as a clinical fact that a host of medicinal agents have been exploited for its relief and several surgical procedures have been devised to expedite the passage of food through the bowel. In short, all measures are designed to prevent a chemical autointoxication resulting from excessive and noxious bacterial activity. Yet Alvarez,[1] on the basis of a critical analysis of the literature on the origin of the symptoms in so-called autointoxication as well as his own experience as a gastro-enterologist, confidently concludes that the symptoms in intestinal stasis and constipation are due not to the absorption of any toxin but rather to a "mechanical distention and irritation of the lower bowel by the fecal masses." According to this investigator, the symptoms of so-called autointoxication result from the altered physiologic activity of other organs and tissues brought about by the stimulation of sensory nerves in a "distended, overactive, or wrongly acting bowel" in a sensitive, and often psychopathic, person. His position is at marked variance with the current chemical theory that an autotoxemia is the cause of the mental and physical manifestations of constipation. And since the treatment will depend on the cause, the medical profession will follow with more than academic interest the experimental development of a thesis so ably defended in this early presentation by one eminently fit to prosecute the work in the clinic as well as in the laboratory. Coincidently, more light will most certainly be thrown on the importance in the normal physiologic economy of man of that vast stream of sensory impulses continually pouring into the nervous system from the abdominal viscera through the interoceptors (Sherrington) so plentifully present along the entire gastro-intestinal tract. These visceral impulses rarely, under normal conditions, come into clear consciousness, and still elicit reflex acts which, in known instances, are of the greatest importance to man. An intensive study of this general visceral system will no doubt reveal facts of interest to the physiologist and of great practical importance to the clinician.

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[1] Alvarez, W. C.: Origin of the So-Called Autointoxication Symptoms, this issue, p. 8.

THE LOS ANGELES COUNTY HOSPITAL AND INTERNS

The Los Angeles County Hospital is one of the largest hospitals on the Pacific Coast, having 1,250 beds according to the latest report. Heretofore the requirements for the admission of interns have been sufficiently rigid that only graduates of better grade medical schools have been admitted to the staff. From a recent report, however, there appears to have been a serious change in this respect. Out of twenty-six interns at present in this hospital, eleven are reported as graduates of an osteopathic college, one is a graduate of dentistry, and one holds a diploma from the notorious Oriental University, a "correspondence" institution, at Washington, D. C. It is unbelievable that these interns could have secured their places had they been required to pass a thorough but fair examination, including practical and clinical tests, such as is used in testing the qualifications of interns by other high grade hospitals in the United States. Where high requirements are upheld, not only do the hospitals gain the best qualified interns, but the internships are more eagerly sought after. Any relaxation of requirements, however, by which poorly educated or incompetent graduates could secure internships, would produce the opposite effect. Graduates of high grade medical schools will avoid rather than seek internships in hospitals with easy or no educational requirements. They know that, as a rule, such hospitals are not conducted on a plane that will further their medical training. More particularly, however, they do not wish to be held partly responsible for bad conditions, if not scandals, which are liable to result from incompetence on the part of other members of the intern staff. It is hoped that the conditions at present in the Los Angeles County Hospital are only temporary, due perhaps to a war emergency, and that this otherwise splendid hospital will restore such strict regulations for admission to its intern staff as will not only uphold its reputation and guarantee a continued supply of competent interns but will also provide the best possible care for its patients.

THE 1919 ANNUAL SESSION A VICTORY MEETING

The principal feature at the annual session of the American Medical Association at Atlantic City next June will be the bringing together of medical delegates of the allied governments associated in the world war. It will be a victory meeting in which our confrères from other countries will help to celebrate the victory in which all had a part. It is contemplated that there will be conferences between representatives of the medical departments of the United States government and the foreign delegates relative to the good that may result from the experience of the various countries in medicine and surgery, especially in their military aspects. Undoubtedly deliberations will be held with a view to establishing and maintaining cooperative interallied graduate study and research—a most important subject at the present time. The main thing, however, will be to cement the bonds of an enduring friendship between members of the medical profession of the allied countries. This meeting has the approval of the Secretary of War: it will be semigovernmental in character. Invitations are being sent to the embassies and legations at Washington representing the allied governments. The Board of Trustees appointed a committee to have general charge of this feature. The constituent and component branches of the American Medical Association and the various medical centers undoubtedly will be called on in due time to do their part in extending the courtesies of the profession of the United States to these foreign delegates, as it is proposed that while here they will be given an opportunity of seeing our country.

Habits and Health.—Organized society may purchase the extinction of the malarial mosquito. It may buy the eradication of the yellow fever mosquito, the rat of bubonic plague, the tick of spotted fever, the fly of sleeping sickness, or the louse of typhus fever or of trench fever. Organized society may buy clean, pure water, and it may purchase a successful food inspection. But it cannot buy habits of personal hygiene that produce human health; that defend the individual from disease and postpone his death. It cannot purchase health habits that give the individual resistance to disease, making it harder for him to become sick and easier to recover. It cannot purchase the personal consciousness of individual obligation in the health affairs of the community that is essential to an effective defense of the community health.—T. A. Storey, M.D., Ph.D., on Physical Training.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending December 27, there were in the Medical Corps, 29,098 officers, a decrease of 949 since the previous week. This personnel includes four major-generals, five brigadier-generals, 221 colonels, 521 lieutenant-colonels, 2,462 majors, 9,452 captains and 16,433 lieutenants. There were in active service 28,357, a decrease of 875 since the previous week. Discharges to date include 6,231 officers.

New Medical Officers for Navy

As the result of examinations, held October 30 and 31, at various places throughout the country, of applicants for admission to the Medical Corps of the Navy, 144 officers of the U. S. N. R. F., and those holding temporary commissions were found qualified for appointment in a permanent establishment.

Death and Sick Rates in Army Camps

At present about 200,000 men are being discharged each week from the military service. All these men are given a thorough examination and are not discharged unless they are in as good a physical condition as Army medical treatment can make them. With this rapid diminution in the total number of men, the sick and death rates will inevitably rise, even though the number of sick men is diminishing, because the healthy men are being discharged. On the other hand, improvement in health conditions in all the camps may be expected because sanitary problems will become more simple with the decrease of the number of men in the camps.

Expedition to Turkey for Reconstruction Work

The Committee for Armenian and Syrian Relief it is reported is sending an expedition to Turkey for reconstruction work. Many hospitals are to be rehabilitated and a staff of twenty-five physicians is required. Only native born American citizens are eligible. The expedition will sail about the middle of January. Physicians with hospital experience in medicine and surgery and interested in war reconstruction work should communicate with Dr. George E. Washburn, 238 Commonwealth Avenue, Boston.

Prisoners Released

Hon. Dr. Henri S. Beland, C. A. M. C., St. Joseph de Beauce, Que., a member of the Canadian Parliament, who was in Belgium at the time the war broke out and was a prisoner for three years and was liberated by exchange, spoke regarding his experiences before the Boston Chamber of Commerce, December 12.——Lieut. Bernard J. Gallagher, M. C., U. S. Army, Minneapolis, who has been a prisoner in Camp Villingen, Germany, since March 28, has been liberated and is now in France.

Wounded

Capt. George C. Skinner, M. C., U. S. Army, Cedar Rapids, Iowa, is reported to be under treatment at a hospital in Paris, from wounds received, when a first aid station was bombed by German airplanes.——Capt. Henry B. Beeson, M. C., U. S. Army, Cornell, Wis., is reported to have been seriously wounded.——Lieut. John D. Colson, M. C., U. S. Army, St. Stephen, S. C., is reported to have been seriously wounded.——Lieut. James R. Martin, M. C., U. S. Army, Philadelphia, is reported to have been wounded severely.——Capt. Clifford H. Arnold, M. C., U. S. Army, Ardmore, Pa., is reported to have been wounded severely.——Lieuts. Isaac I. Parsons, M. C., U. S. Army, Media, Pa., and Cornelius T. McCarthy, M. C., U. S. Army, Philadelphia; Capt. Axel W. Swenson, M. C., U. S. Army, Bisbee, N. D., and Lieut. Ralph Emerson Buckley, M. C., U. S. Army, Hazleton, Pa., are reported to have been wounded in action, degree undetermined.

Mentally Defective in the Army

In a statement made to the senate committee on military affairs, December 13, Surgeon-General Ireland of the Army said that the number of mental and nervous cases requiring special treatment among soldiers in camps in this country is 2.5 per thousand. This is slightly above the number of cases in civil life. Among the troops overseas the number is 10 per thousand. Six hospitals abroad are used exclusively for treating these men, each base hospital having facilities for emergency treatment of the mentally defective. An interesting effect on shell-shock patients of the announcement of the armistice was that among 2,500 of these patients 2,100 were restored to normal within a day or two. It was brought out in the hearing that many men among the shell-shock cases had been decorated for extraordinary bravery in battle. The success of the Army medical examiners in keeping mentally defective men out of the service is shown by the fact that among the first 800,000 men examined, only 400 cases developed.

Reserve Officers' Training in Colleges

A large proportion of the 500 educational institutions in the United States which during the past year have devoted part of their efforts to military training of the students will now, under a new arrangement of the War Department, turn their attention to the Reserve Officers' Training Corps. Before the war there were about 115 units of the Reserve Officers' Training Corps in the various colleges. Under the demobilization order these were all abolished, but under the new arrangement about 100 of these are now being reestablished, and 200 applications for new units have been received. An important change under the new order is that the units will be allowed to specialize in training officers for the various corps of the Army, such as Medical Corps, field artillery, etc. Plans are also under way to establish junior units in the secondary schools. City high school corps are already established in Boston, Chicago, Denver and a number of other cities. A large part of the equipment used in the various institutions for the Students' Army Training Corps will be made use of for the Reserve Officers' Training Corps. The administration has been placed in the hands of the Committee on Education and Special Training of the War Plans Division of the general staff.

Proposed Changes in Army Medical Corps

Representative Dyer has recently proposed to amend the national defense act, as follows:

Section 1. That the medical department of the Army shall consist of one surgeon general with the rank of major general, who shall be chief of said department; assistant surgeon generals in the ratio of one-half of one per centum of the total number of officers of the medical department provided by law, the assistant surgeon generals to be equally distributed in the grades of major general and brigadier general of the medical corps, the dental corps, and the veterinary corps authorized by law, the commissioned officers of which shall be citizens of the United States, the enlisted force of the medical department of the Army as now provided by law.

Sec. 2. That commissioned officers of the medical corps below the rank of brigadier general shall be proportionately distributed in the several grades as now provided by law for the medical corps of the Navy.

Sec. 3. That hereafter the President shall be authorized to fill any vacancy that may occur in the commissioned personnel of the permanent establishment of the medical department of the Army of the United States by selection from the medical officers of the United States Army of not less than one year's continuous active service: Provided, That the selection shall be upon the efficiency rating and satisfactory examination of the officer, and where two or more officers are of equal rating selection will favor the one of longest service in the United States Army, Volunteer Army, National Guard, officers' reserve corps, or National Army: Provided further, That the officers so selected will be commissioned without loss of rank in the permanent establishment of the medical department of the Army of the United States, and such officers so commissioned shall be entitled to all pay, promotion, and allowances of officers of like rank in the permanent establishment of the Army of the United States, excepting that the rate of retirement pay shall be one-thirtieth of the present retirement pay, as now prescribed by law, for each year's service as enlisted man; or commissioned officer, or the total of such services in the United States Army, Volunteer Army, National Guard, officers' reserve corps, National Army, dental corps, dental reserve, or enlisted personnel in the Army or National Guard in any of the various departments of the Army of the United States: And provided further, That at the age now prescribed by law for retirement an officer to receive retirement pay shall have not less than 15 years' service in any or all branches enumerated in this act: And provided further, That the provisions of this act shall in like manner govern the filling hereafter of all vacancies in the dental corps of the United States Army: And provided further, That the ratio of dental surgeons now and hereafter commissioned shall be two dental surgeons per thousand of enlisted strength of the Army of the United States: And provided further, That all laws or parts of laws, in so far as they are inconsistent with the provisions of this act, are hereby repealed.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

ALABAMA

Hartzelle—White, A. M.
Tuskegee—Collier, G. B.

ARKANSAS

Rosboro—Baker, W. P.

CALIFORNIA

Eureka—Falk, C. O.
Los Angeles—Ragland, D. C.
  Smith, W. H.
  Williams, E. H.
Oakland—Dupuich, L. R.
  Porter, W. S.
  Walton, G. E. P.
Richmond—Abbott, U. S.
San Diego—Pickard, R. J.
San Francisco—Dannenbaum, S. R.
  Jellinek, E. O.
  Wymore, W. W.

COLORADO

Colorado Springs—Peters, A. H.
Denver—Powers, C. A.
  Roberts, W.
Julesburg—Ewing, G. F.
Pueblo—Williamson, A. R.

CONNECTICUT

Derby—Sharpe, E. T.

DISTRICT OF COLUMBIA

Washington—Cox, O. C.
  Schneider, A. L.

FLORIDA

Arcadia—Ford, J. A.
Key West Barracks—Porter, J. Y., Jr.
Princeton—Byrd, H.
Tampa—Coon, G. B.

GEORGIA

Atlanta—Campbell, W. E., Jr.
  Roberts, S. R.
Bainbridge—Ehrlich, M. A.
Baxley—Mercer, J. E.
Columbus—Cooke, W. L.

ILLINOIS

Chicago—Austin, R. S.
  Churchill, F. S.
  Findlay, E. K.
  Fraider, F. F.
  Kershaw, R. D.
  Manning, J. L.
  Vernon, H. W.
Glencoe—Reinsch, F.
Granville—Wilson, H. M.
Maywood—Coffman, S. W.
Normal—Behrendt, E. A.
Ridgefarm—Dice, H. F.

INDIANA

C[illegible]—Schenck, F. O.
[illegible], W. E.
[illegible] M.
Indianapolis—Caraway, S. H.
La Fontaine—Higgins, J. B.
Lake—Thompson, A. B.
Reynolds—Williams, A. C.
Versailles—Coomes, M. J.

IOWA

Cherokee—Donohoe, G.
Des Moines—Luginbuhl, C. B.
  Price, J. T.
Gladbrook—McDowall, G. T.
Jefferson—Black, J. R.
Monona—Everall, B. B.
Spencer—Voight, B. J.
Winfield—McConnaughey, J. T.

KANSAS

Kansas City—Faust, J. W.
Wellington—Netherton, F. F.

KENTUCKY

[illegible], E. C.
[illegible] S. M.
Covington—Davis, J. A.
London—Smith, J. I.
Louisville—Bruce, E. T.
  Moss, J. W.
Raywick—Mitchell, O. A.
Westview—Biggers, J. A.

LOUISIANA

Abbeville—Eldredge, H. A.
Melrose—Kelly, J. L.
New Orleans—Gladden, A. H.

MAINE

North Berwick—Brown, L. H.

MARYLAND

Baltimore—Kahn, M. R.
  Rigby, C.
Midland—Holdsworth, J. C.

MASSACHUSETTS

Boston—Papoulacos, P. M.
  Tobey, G. L., Jr.
  Williams, D. L.
Concord—Shaw, F. K.
Gardner—McAuslan, J. L.
Haverhill—Ruel, J. A.
Lynn—Fraser, W. L.
Malden—Holden, N.
New Bedford—La Riviere, E. G.
Taunton—MacDonald, D. F.
Webster—Bragg, L. R.
West Bridgewater—Le Lacheur, E. S.

MICHIGAN

Lansing—Owen, A. E.
Ludington—Force, W. H.
Marquette—Drury, C. P.

MINNESOTA

Brainerd—Evert, J. A.
Duluth—McKillip, W. J.
St. Paul—Lembke, C.
  Zander, C.

MISSISSIPPI

Collins—Blount, W. N.
Rodney—Smith, D. S.

MISSOURI

Bronson—Mitchell, G. B.
Centralia—Hickerson, J. T.
Ebenezer—Potter, A. E.
Glasgow—Hawkins, W. R.
Neosha—Roseberry, E. M.
Poplar Bluff—Eure, J. B.
St. Joseph—McDonald, F. R.
St. Louis—Eyerman, E. H.
  Suggett, O. L.
Warrenton—Ebeling, A. W.

MONTANA

Bearcreek—Siegfreidt, J. C. F.
Butte—McCarthy, P. H.

NEBRASKA

Lincoln—Morrill, R. M.

NEW JERSEY

Newark—Hagerty, J. F.
  Tansey, W. A.
Paterson—Holmes, T. J. E.
Red Bank—Magee, D. M. P.

NEW YORK

Albany—Bibby, F. N.
Brooklyn—Bierwirth, J. C.
Buffalo—Carpenter, A. D.
  Tompkins, C.
Central Islip—Jenkins, N. B.
Haverstraw—Hirsch, J. H.
New York—Booxbaum, M. M.
  Bull, C. G.
  Dunning, H. S.
  Fitch, W. E.
  Hoag, D. E.
  Lambert, R. A.
  McAuliffe, D. A.
  McConnell, R. H.
  Reu, L.
  Schaffer, J. M.
Rochester—Edwards, W. D.
West Rochester—Leary, M. E.

NORTH CAROLINA

Murphy—Adams, N. B.
Raleigh—Payne, L. E., Jr.

NORTH DAKOTA

Park River—Weed, F. E.

OHIO

Cincinnati—Baker, E. E.
  Johnston, E. S.
Columbus—Miller, G. W.
Dalton—Wenger, G. N.
Dayton—Slusser, H. A.
Dustin—Scott, T. H.
Galion—Murr, P. A.
Granville—Cook, E. P.
Massillon—Williams, J. S.
Morrow—Vance, R. H.
Mount Vernon—Workman, I. S.
Murray—Hayman, E. H.
New Madison—Kimmel, O. P.
Ottawa—Owens, O. J.
Ridgeville Corners—Slosser, D. J.
Springfield—Auston, H. H.
Tiffin—Leister, R. B.
  Miller, B. R.
Toledo—Faber, C.
  LaSalle, J. J.
Van Wert—Flemming, R. C.

OKLAHOMA

Cherokee—Lile, H. A.
Drumright—Reynolds, S. W.
Faxon—Dolson, F. R.
Idabel—Moreland, J. T.
Stillwell—Evans, S. R.
Supply—Goddard, R. K.
Tulsa—Pigford, A. W.
  Spitz, E. A.
  Wright, W. E.

PENNSYLVANIA

Adamsburg—Dickson, G. M.
Indiana—St. Clair, F. W.
Meadville—McFate, J. C.
Philadelphia—Boggs, J. W.
  Freeman, F. E.
  Gans, S. L.
  Riesman, D.
  Weaver, A. K.
Pittsburgh—Hieber, H. M.
  Kneedler, G. C.
  Stahlman, T. M.
Ryal—Owsley, F. D.
Scranton—Davis, E. R.

SOUTH CAROLINA

Columbia—Baggott, B. H.
Eastover—Stuart, G. C.
Fountain Inn—Shaw, H. L.
Lamar—Boykin, G. L.
St. George—Judy, W. S.

SOUTH DAKOTA

Howard—Collins, W. P.
Lead—Fleeger, R. B.

TENNESSEE

Bells—Eason, W. B.
Memphis—Haase, M.
  Stout, L. H.
Nashville—Hall, J. E.
  Litterer, J. H.

TEXAS

Blanco—Kleifeth, F. H.
Charlotte—Irwin, C. M.
Dallas—Clay, H.
El Paso—Hunter, J. R.
Fort Worth—Dreiss, C. A.
Houston—Parker, G. D.
Plantersville—McMillan, C. M.
Port Arthur—Autrey, A. R.
San Antonio—Combe, F. J.

WASHINGTON

Kent—Heg, E. E.
North Yakima—Reineke, C. A.

WEST VIRGINIA

[illegible], E. B.
[illegible] D. J.
[illegible] E.
[illegible] W.

WISCONSIN

Clintonville—Finney, W. H.
Milwaukee—Patek, A. J.
  Seelman, J. J.
Mishicot—Stueck, A. F.
North Fond du Lac—Pullen, A. J.
White Hall—Hutchins, S. E.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Army Medical School, from Camp Crane, Capt. M. E. SHERER, Childersburg.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. C. C. WILEY, Birmingham.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. J. U. REAVES, Mobile.

To Fort McHenry, Md., from Fort Oglethorpe, Major C. T. POLLARD, Montgomery.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. J. A. USSERY, Courtland.

To Long Beach, N. Y., from Camp McClellan, Lieut. G. LOTTERHOS, Birmingham; from Fort Oglethorpe, Lieut. L. C. ELLIS, Florence.

To Walter Reed General Hospital, D. C., from Camp Lee, Lieut. W. J. ROBBINS, Ensley.

Arkansas

To Camp Pike, Ark., from Fort Oglethorpe, Lieut. E. M. THOMPSON, Fort Smith.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. A. H. COOK, Hot Springs.

To Chicago, Ill., from Fort Riley, Lieut. C. WALLIS, Arkadelphia.

To Mineola, N. Y., Hazelhurst Field, from Hoboken, Lieut. T. E. RHINE, Thorton.

To Whipple Barracks, Ariz., from New Haven, Capt. I. H. JEWELL, Paris.

California

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. G. R. LATON, Los Angeles.

To Camp Fremont, Calif., base hospital, from Camp Dix, Major C. G. TOLAND, Los Angeles.

To Camp Kearney, Calif., from Fort Oglethorpe, Lieut. H. A. TODD, Visalia.

To Charleston, S. C., from the Surgeon-General's Office, Major L. F. LUCKIE, Los Angeles.

To Fort Des Moines, Iowa, from Camp Wadsworth, Capt. C. A. WARNER, Ontario; from Camp Wheeler, Lieut. C. S. YOUNG, Los Angeles.

To Fort MacArthur, Calif., from Fort Oglethorpe, Lieut. F. C. SWEARINGEN, Pomona.

To Newport News, Va., from Camp Lee, Major C. E. MORDOFF, San Francisco; Capt. A. F. BRADSHAW, Orange; Lieuts. A. A. McCLURKIN, Los Angeles; A. E. McDOWELL, Palo Alto.

To San Francisco, Calif., Presidio, from New Haven, Major F. P. GAY, Berkeley. As orthopedic surgeon, from Camp Fremont, Lieut. J. M. SMITHWICK, Byron Hot Springs.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Capt. C. A. BELL, Santa Barbara.

The following order has been revoked: *To Camp Kearney, Calif.*, from Fort Oglethorpe, Capt. B. G. PINKERTON, Los Angeles.

Canal Zone

The following order has been revoked: *To Fort McPherson, Ga.*, Lieut. L. WENDER, Corozal.

Colorado

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. W. H. STRATHMANN, West Toledo.

To Camp Gordon, Ga., base hospital, from Camp Sherman, Lieut. G. L. SHARP, Colorado Springs.

To Denver, Colo., from Camp Raritan, Capt. W. T. LITTLE, Canon City.

To Fort Logan, Colo., from Camp MacArthur, Major R. L. DRINKWATER, Denver.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Boston, Capt. C. G. McEACHERN, Denver.

To West Baden, Ind., from Camp Sevier, Capt. C. S. MORRISON, Colorado Springs.

Connecticut

To Army Medical School, from Fort Oglethorpe, Capt. T. F. BEVANS, Waterbury; from Walter Reed General Hospital, Major H. F. STOLL, Hartford.

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. J. C. ROWLEY, Hartford.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. C. D. DEMING, Hartford.

To Fort Ontario, N. Y., from Camp Greene, Capt. F. E. WILSON, Hartford.

To Hoboken, N. J., from Camp A. A. Humphreys, Capt. W. R. MILLER, Southington; from Fort Oglethorpe, Capt. E. R. KELSEY, Winsted.

To Williamsbridge, N. Y., from Camp Lee, Capt. F. C. HYDE, Greenwich.

The following order has been revoked: *To Camp Upton, N. Y.*, from Fort Oglethorpe, Capt. J. D. GOLD, Bridgeport.

District of Columbia

To Camp Holabird, Md., as camp surgeon, from Walter Reed General Hospital, Lieut.-Col. J. E. Hall.

To Carlisle, Pa., from Washington, Col. F. R. KEEFER.

To Long Beach, N. Y., from Camp McClellan, Lieut. C. B. CONKLIN, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Rochester, Minn.*, Mayo Clinic for instruction, and on completion *to his proper station*, from Walter Reed General Hospital, Capt. L. [illegible]

To Washington, D. C[illegible] fice, from Eastern Department, Lieut. W. J. G. [illegible]

Florida

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut R. O. COOLEY, West Palm Beach.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Wheeler, Lieut. W. H. WATSON, Lakeland.

Georgia

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Lieut C. B. BAILEY,. Hawkinsville.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. H. B. BRADFORD, Atlanta.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. B. DANIEL, Cordele.

To Camp Hancock, Ga., from Camp Wheeler, Major O. H. STANLEY.

To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Lieut. R. F. WILSON, Atlanta.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. M. S. RICHARDSON, Cedartown.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. J. R. McMICHAEL, Quitman.

To Corpus Christi, Texas, from Fort Oglethorpe, Lieut. T. STARR, Calhoun.

To Fort Benjamin Harrison, Ind., from Camp Sevier, Lieut. A. G. De LOACH, Atlanta.

To Fort Bliss, Texas, base hospital, from Fort Oglethorpe, Capt. R. T. AYCOCK, Monroe.

To Fort McPherson, Ga., from Camp McClellan, Major J. F. DENTON, Atlanta; from Walter Reed General Hospital, Capt. O. L. MILLER, Atlanta.

To Hoboken, N. J., from Camp Meade, Lieut. R. L. RHODES, Augusta.

To Newport News, Va., from Fort Oglethorpe, Lieut.-Col. W. H. RICHARDSON.

To Otisville, N. Y., from Fort Oglethorpe, Lieut. J. A. PRICE, Milledgeville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Gordon, Major F. H. PETTERS.

The following order hsa been revoked: *To Chicago, Ill.*, from Fort Oglethorpe, Capt. I. H. ADAMS, Macon.

Illinois

To Americus, Ga., Souther Field, as flight surgeon, from West Point, Miss., Capt. D. R. SCOTT, Macomb.

To Army Medical School, from Camp Pike, Lieut. J. C. SMALL, Chicago; from Fort Oglethorpe, Lieut. W. A. GROSS, Chicago.

To Camp Devens, Mass., from Lakewood, Lieut. C. M. BACON, Chicago.

To Camp Grant, Ill., as tuberculosis examiner, from Camp Crane, Lieut. J. SCHLESINGER, Oak Forest.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. R. W. E. SPRENG, Chicago.

To Camp Hancock, Ga., from Camp Lee, Capt. E. A. OLIVER, Chicago.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. R. C. CUPLER, Chicago.

To Camp Logan, Texas, from Fort Oglethorpe, Capt. G. OSBORNE, Chicago. *To examine the command* for nervous and mental diseases, from Camp Pike, Lieut. D. D. CAMPBELL, Chicago.

To Chicago, Ill., from Fort Riley, Lieuts. J. E. BROOKS, B. E. ELLIOTT, A. H. FERGUSON, M. J. SILVER, Chicago; C. V. WINSETT, Prophetstown.

To Columbus Barracks, Ohio, from Fort Oglethorpe, Capt. A. F. KAESER, Highland.

To Fort Bayard, N. M., from New Haven, Capt. F. M. WOOD, Chicago; from San Antonio, Lieut. R. W. DUNHAM, Chicago.

To Fort McHenry, Md., from Camp Meade, Lieut. O. L. EDWARDS, Roodhouse; from Camp Wheeler, Capt. C. H. SOLOMON, Chicago.

To Fort Sheridan, Ill., from Camp Shelby, Capt. E. B. FOWLER. Chicago; from Fort Oglethorpe, Major E. W. RYERSON, Lieut. W. WILLIAMS, Chicago.

To Hoboken, N. J., from Camp Meade, Capt. C. B. RIPLEY, Galesburg.

To Long Beach, N. Y., from Camp McClellan, Lieut. A. N. MUELLER, Rock Island; from Camp Upton, Lieut. W. I. GREEN, Sumner; from Fort Oglethorpe, Capt. M. M. PORTIS, Chicago; Lieuts. D. M. LITTLEJOHN, Pana; G. B. BORMANN, Waukegan; from New Haven, Capt. H. H. BAY, Chicago.

To West Baden, Ind., from Fort Oglethorpe, Lieut. J. S. BERKOWITZ, Chicago.

The following orders have been revoked: *To Camp Bowie, Texas*, from Camp Beauregard, Lieut. J. F. KUCERA, Chicago. *To Camp Crane, Pa.*, from Hoboken, Capt. G. B. BUSHEE, Arlington. *To Camp Grant, Ill.*, from Fort Oglethorpe, Lieut. F. R. BUTTERFIELD, Chicago. *To Chicago, Ill.*, for instruction, from Camp Crane, Lieut. S. F. KUBALA, Chicago. *To Fort Benjamin Harrison, Ind.*, from Fort Oglethorpe, Lieut. G. S. BETTS, Banner. *To Fort Ethan Allen, Vt.*, from Richmond, Capt. A. T. EIDE, Chicago. *To Hoboken, N. J.*, from Camp Devens, Capt. W. P. MacCRACKEN, Chicago. *To Pittsburgh, Pa.*, from Lakewood, Capt. S. R. CATLIN, Rockford.

Indiana

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. E. E. HEATH, Napoleon.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. F. H. GREEN, Rushville.

To Charleston, S. C., from West Baden, Major E. R. ROYER, North Salem.

To Chicago, Ill., from Fort Riley, Lieut. R. J. D. PETERS. Indianapolis.

To Fort Benjamin Harrison, Ind., from Camp Lee, Capt. F. E. TERFLINGER, Logansport.

To Fort Riley for instruction, Lieut. G. W. KOHLSTAEDT, Indianapolis.

To Hoboken, N. J., from Camp Dix, Capt. B. W. CHIDLAW, Hammond; from Camp Upton, Capt. A. L. BREMKAMP, Richmond; Lieut. H. E. GOWLAND, Valparaiso.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. H. W. COX, Indianapolis.

To Newport News, Va., from Camp Lee, Capt. H. H. TALLMAN, La Paz.

To Waynesville, N. C., from Fort Oglethorpe, Lieut. F. M. RUBY, Union City.

To West Baden, Ind., from Fort Oglethorpe, Lieut. E. T. EDWARDS, Vincennes.

The following orders have been revoked: *To Fort Benjamin Harrison* for instruction, from Camp Shelby, Capt. H. G. FLEMING, Anderson. *To Lakewood, N. J.*, for instruction, from Camp Crane, Lieut. V. GORDON, Blountsville.

Iowa

To Camp Sheridan, Ala., from Camp Wheeler, Capt. G. R. HILL, Charter Oak; base hospital, from Fort Oglethorpe, Lieut. B. S. BARNES, Shenandoah.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. H. G. MOERSHEL, Homestead.

To Fort Bayard, N. M., from San Antonio, Capt. L. L. CRAVEN, East Peru.

To Fort Des Moines, Iowa, from Washington, Capt. G. C. SKINNER, Cedar Rapids.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. R. E. PECK, Davenport.

To Fort Sill, Okla., base hospital, from Fort Riley, Lieut. C. E. LOWREY, Centerville.

To Hoboken, N. J., from the Surgeon-General's Office, Major H. C. PARKER, Dubuque.

To Newport News, Va., from Camp Lee, Lieut. B. HOUSTON, Nevada.

The following order has been revoked: *To Hoboken, N. J.*, from Camp Devens, Capt. M. A. HEALY, Boone.

Kansas

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. H. R. SCATES, Baxter Springs.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. W. G. BOUSE, Centralia.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. O. R. BRITTAIN, Salina.

Kentucky

To Camp Benning, Ga., from Fort Oglethorpe, Capt. J. R. MEEK, Covington.

To Camp Dodge, Iowa, base hospital, from New Haven, Lieut. S. J. SMOCK, Glasgow.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. I. T. FUGATE, Louisville.

The following order has been revoked: *To Walter Reed General Hospital*, from Camp Colt, Lieut. G. L. THOMPSON, Lovelaceville.

Louisiana

To Biltmore, N. C., from Fort Oglethorpe, Lieut. I. B. ROUGON, Shreveport.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. O. P. DALY, Jr., Lafayette.

Maine

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. M. P. HAMBLETON, Augusta.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. J. O. PIPER, Solon.

Maryland

To Army Medical School, from Camp Pike, Lieut. T. M. RIVERS, Baltimore.

To Boston, Mass., from Fort Oglethorpe, Lieut. E. H. HEDRICK, Baltimore.

To Camp Raritan, N. J., from New Haven, Capt. E. J. LEOPOLD, Baltimore.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. H. M. BANKS, Baltimore.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. H. J. WALTON, Baltimore.

To Cape May, N. J., from Fort Oglethorpe, Lieut. S. COBB, Baltimore.

To Fort Bayard, N. M., from San Antonio, Lieut. L. L. JACOBS, Baltimore.

To Rochester, Minn., Mayo Clinic, for instruction, from Camp Meade, Lieut.-Col. G. L. QUALLS.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to their proper stations,* from Camp Meade, Capts. C. W. VEST, J. R. B. BRANCH, Baltimore.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Major G. TIMBERLAKE, Lieut. W. A. H. COUNCIL, Baltimore.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. E. NOVAK, Baltimore.

The following order has been revoked: *To Hoboken, N. J.,* from Camp Devens, Capt. F. E. WHEET, Rumford.

Massachusetts

To Army Medical School, from Camp Crane, Lieuts. E. J. FITZGIBBON, Boston; J. E. DEMPSEY, Newton; from Camp Wheeler, Lieut. C. BEARSE, Boston.

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. M. E. COONEY, Northampton.

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. P. J. FINNEGAN, Salem.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. R. S. PEARCE, Falkner.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. J. E. BURNS, Natick.

To Camp Lee, Va., base hospital, from Camp Wheeler, Lieut. W. R. SISSON, Boston.

To Camp Meade, Md., from Camp Meigs, Lieut. M. W. PECK, Marblehead.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieuts. L. H. POTE, Winter Hill; E. R. LEIB, Worcester.

To Fort Ethan Allen, Vt., from Fort Oglethorpe, Lieut. C. B. KENNEY, Winchendon.

To Fort McHenry, Md., from Army Medical School, Capt. L. I. SKIRBALL, Revere.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. E. S. O'KEEFE, Lynn.

To Hoboken, N. J., from Fort Myer, Lieut. H. W. ELLAM, Gardner.

To Lakewood, N. J., from Fort Oglethorpe, Capt. S. F. CURRAN, Boston.

To Long Beach, N. Y., from Fort Oglethorpe, Capt. C. M. HUTCHINSON, Cambridge; E. J. SWEENEY, Springfield; Lieuts. J. G. HEGARTY, Boston; C. R. VINAL, Turners Falls.

To Newport News, Va., from Camp Lee, Capt. J. W. CLARKE, Attleboro.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Boston, Capt. A. G. RICE, Springfield.

The following orders have been revoked: *To Colonia, N. J.,* from Camp Crane, Lieut. L. S. KEMP, Canton. *To Camp Jackson, S. C.,* base hospital, from Fort Oglethorpe, Capt. H. F. DEARBORN, Lawrence. *To Hoboken, N. J.,* from Camp Devens, Capts. F. E. WITHEE, Newton; J. T. McGILLICUDDY, Worcester.

Michigan

To Biltmore, N. C., from Fort Oglethorpe, Capt. A. J. REYNOLDS, Flint.

To Camp A. A. Humphreys, Va., to examine troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. J. G. GAGE, Battle Creek.

To Camp Forrest, Ga., from Fort Oglethorpe, Capt. C. D. CHAPIN, Columbiaville.

To Camp Jackson, S. C., base hospital, from Camp Wheeler, Capt. H. W. EMERSON, Ann Arbor.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieuts. P. F. MORSE, Highland Park; D. W. PATTERSON, Port Huron.

To Hoboken, N. J., from Camp Crane, Lieut. F. L. NONHART, Detroit; from Fort Oglethorpe, Lieut. F. F. GARDNER, Detroit.

To Lakewood, N. J., from Newport News, Lieut. J. A. ELLIOTT, Ann Arbor.

To Plattsburg Barracks, N. Y., from Camp Meigs, Capt. J. F. BERRY, Kalamazoo.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Custer, Lieut. E. S. THORNTON, Muskegon.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Lieut.-Col. N. B. FOSTER, Ann Arbor.

To West Baden, Ind., from Fort Oglethorpe, Capt. P. B. TAYLOR, Detroit.

The following orders have been revoked: *To Boston, Mass.,* from Camp Crane, Major C. D. BROOKS, Detroit. *To Hoboken, N. J.,* from Camp Devens, Lieut. R. D. HENSEL, Detroit.

Minnesota

To Army Medical School, from Camp Pike, Capt. F. G. BLAKE, Minneapolis.

To Camp Custer, Mich., base hospital, from Camp Grant, Capt. E. BOECKMANN, St. Paul.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Capt. J. E. DOUGLASS, Thief River Falls.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. C. L. HANEY, Duluth.

To Chicago, Ill., from Fort Riley, Lieut. W. R. HUMPHREY, Stillwater.

To Fort Riley, from Fort Oglethorpe, Capt. J. W. DOYLE, Minneapolis.

To Fort Sheridan, Ill., from Camp Lee, Lieut. J. A. SAARI, Evaleth; from Fort Oglethorpe, Lieut. P. S. EPPERSON, Biwabik.

To Fort Snelling, Minn., and on completion *to Denver, Colo.,* from the Surgeon-General's Office, Major C. H. KEENE, Minneapolis.

To Hoboken, N. J., from Fort Oglethorpe, Capt. M. J. KERN, St. Cloud.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. A. R. ANDERSON, Barnum.

The following orders have been revoked: *To Camp Sevier, S. C., from* Fort Oglethorpe, Lieut. A. H. SCHWARTZ, Duluth. *To Fort Des Moines, Iowa,* from Fort Riley, Capt. W. H. REPLOGLE, Wabasha.

Mississippi

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. J. I. WOODWARD, Picayune.

To Camp Meade, Md., base hospital, from Army Medical School, Capt. D. S. LUCE, Canton.

To Fort Saint Philip, La., from Camp Leach, Capt. C. H. OTKEN, McComb.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. H. W. PRIDDY, Charleston.

To Middletown, Pa., from Fort Oglethorpe, Lieut. L. B. HUDSON, Hattiesburg.

Missouri

To Army Medical School, from Camp Pike, Major E. L. OPIE, St. Louis.

To Biltmore, N. C., from Fort Oglethorpe, Capt. J. D. JAMES, Springfield.

To Camp Meigs, D. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. A. M. GOLDMAN, Kansas City.

To Camp Morrison, Va., from Camp Zachary Taylor, Lieut. J. C. PEDEN, St. Louis.

To Chicago, Ill., from Fort Riley, Lieut. R. E. WILEY, Sikeston.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. E. WATTENBERG, Berger.

To Fort Monroe, Va., from Fort Oglethorpe, Capt. E. P. HAMILTON, Kansas City.

To Fort Screven, Ga., from Camp Leach, Capt. E. S. SMITH, Macon.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. L. SANTE, St. Louis.

To Fort Wayne, Mich., from St. Paul, Lieut. D. B. HAWORTH, Kansas City.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. O. C. HORST, Springfield.

To Lawrenceville, N. J., from Camp Sherman, Lieut. K. C. PEACOCK, St. Louis.

To Plattsburg Barracks, N. Y., from Camp Grant, Lieut. J. F. McFADDAN, St. Louis.

The following orders have been revoked: *To Camp Bowie, Texas,* from Camp Beauregard, Lieut. N. ZOGLIN, Kansas City. *To Camp Greene, N. C.,* base hospital, for instruction, from Camp Jackson, Capt. R. S. TILLES, St. Louis. *To Hoboken, N. J.,* from Fort Oglethorpe, Lieut. W. B. LEVENS, Creighton.

Montana

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. C. A. JOHNSON, Livingston.

Nebraska

To Army Medical School, from Camp Crane, Capt. F. E. BRAUGHT, Coleridge.

To Camp Devens, Mass., from Washington, D. C., Capt. W. T. GARFIELD, Lincoln.

To Camp Dix, N. J., base hospital, from Camp Dodge, Major H. DAVIS, Genoa.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Custer, Capt. D. C. HILTON, Lincoln; from Fort Omaha, Lieut. J. J. LANCER.

The following order has been revoked: *To Camp Travis, Texas,* base hospital, *from* Camp Grant, Capt. *J. F.* KELLY, Dawson.

New Hampshire

To Hoboken, N. J., from Camp Devens, Lieut. E. L. CHAPMAN, Dover.

The following order has been revoked: *To Fort Leavenworth, Kan.,* from Fort Oglethorpe, Lieut. G. A. JOHNSON, Concord.

New Jersey

To Boston, Mass., from Camp Sevier, Capt. S. H. SULOUFF, Jersey City.

To Camp Alfred Vail, N. J., from Camp Crane, Lieuts. H. H. RICH, Newark; E. F. STEWART, Upper Montclair.

To Camp Devens, Mass., base hospital, from New Haven, Lieut. J. M. TAMRAZ, Passaic.

To Camp Dix, N. J., base hospital, from Camp Lee, Capt. A. L. ELLIS, Metuchen.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut W. H. McCORMICK, Jr., Perth Amboy.

To Camp Lee, Va., base hospital, from Camp A. A. Humphreys, Capt. J. M. JONES, Jersey City; *from* Fort Oglethorpe, Lieut. C. F. MERRILL, Highland Park.

To Camp Meigs, D. C., from Camp A. A. Humphreys, Capt. F. A. ROBERTS, Newark.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. T. J. RIORDAN, Jersey City.

To Hoboken, N. J., from Camp Lee, Lieut. J. L. FARDEN, Irvington.

To Otisville, N. Y., from Fort Oglethorpe, Capt. G. THORBURN, Newark.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Wadsworth, Capt. A. NELSON, Jersey City; from Colonia, Capt. A. S. HARDEN, Newark.

To West Baden, Ind., from Fort Oglethorpe, Lieut. W. S. McDANNOLD, Tenafly.

The following order has been revoked: *To Colonia, N. J.,* for instruction, *from* Camp Jackson, Lieut. W. SPICKERS, Paterson.

New Mexico

To Army Medical School, from Hoboken, Major E. S. BULLOCK, Silver City.

New York

To Army Medical School, from Camp Wheeler, Major R. L. CECIL, Lieut. G. E. BLUE, New York; from Fort Oglethorpe, Lieuts. H. T.

CARTWRIGHT, R. C. ECKARDT, New York. For instruction, from Fort Oglethorpe, Capt. L. F. CLELAND, Lisbon.

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. L. H. SMITH, New York.

To Camp Dix, N. J., to examine troops from New York, Lieut. W. C. PORTER, Hudson River.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieuts. W. L. MADDEN, Brooklyn; E. H. BURNES, Rochester.

To Camp Gordon, Ga., with the board examining the command for cardiovascular diseases, from Lakewood, Lieut. A. TOWBIN, New York.

To Camp Greene, N. C., from Fort Oglethorpe, Lieuts. J. G. J. GRIMLEY, New York; J. H. CONGER, Utica.

To Camp Hancock, Ga., base hospital, Lieut. H. B. FEUERSTEIN, Brooklyn.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major G. F. CHANDLER, Kingston.

To Camp Lee, Va., base hospital, from Camp A. A. Humphreys, Capt. A. A. EPSTEIN, New York.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieuts. W. G. PHIPPS, Mount Vernon; J. M. GRIFFIN, Warrensburg.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. A. F. CALVELLI, New York.

To Camp Sherman, Ohio, from Camp Wheeler, Capt. L. B. MOUNT, Albany. Base hospital, from Fort Oglethorpe, Lieut. F. TERRASSE, Buffalo.

To Camp *Upton, N. Y.*, from Camp Meade, Lieut. A. LEIBOVITZ, New York; from Lakewood, Lieut. J. BECKENSTEIN, Brooklyn.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. J. G. HART, Rochester.

To Camp Wheeler, Ga., base hospital, from Lakewood, Capt. C. W. FIELD, New York.

To Charleston, S. C., from Fort Oglethorpe, Lieut. H. SHIMBERG, Syracuse; from the Surgeon-General's Office, Lieut.-Col. E. C. REGISTER, Syracuse.

To East Norfolk, Mass., from Fort Oglethorpe, Lieut. H. AGRIS, Brooklyn.

To Fort Benjamin Harrison, Ind., from Camp Sevier, Capt. J. A. McCAFFERTY, New York.

To Fort Logan H. Roots, Ark., from Fort Oglethorpe, Lieut. F. J. LEONARD, Ilion.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. E. C. REIFENSTEIN, Syracuse; Lieut. A. L. MARGOLIES, New York.

To Fort Riley, base hospital, from Camp Dix, Capt. E. C. FISCHBEIN, Sonyea.

To Fort Slocum, N. Y., from Fort Oglethorpe, Lieut. M. F. SULLIVAN, Pyrites.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieuts. J. J. O'LOUGHLIN, Brooklyn; R. C. MOONEY, Gloversville.

To Hoboken, N. J., from Camp Dix, Major E. H. PERSHING, Woodmere; from Fort Oglethorpe, Capt. W. B. LARGE, Rochester.

To Lakewood, N. J., from Camp A. A. Humphreys, Lieut. A. EBERLE, Brooklyn; from Fort Oglethorpe, Capt. E. M. GRIFFITH, Chadwicks; Lieut. T. V. STACK, New York.

To Lawrenceville, N. J., from Fort Oglethorpe, Lieut. F. C. McCLELLAN, New York.

To Long Beach, N. Y., from Camp Abraham Eustis, Lieut. B. R. BASE, Brooklyn; from Camp Crane, Major C. D. NAPIER, Brooklyn; from Camp Devens, Major W. M. FORD, New York; from Fort Oglethorpe, Lieut. H. H. LE SEUR, Batavia; from Metuchen, Major W. A. CONLON, Central Islip.

To Middletown, Pa., from Fort Oglethorpe, Capt. J. H. KEVAND, Syracuse.

To New Haven, Conn., from Fort Oglethorpe, Capt. E. N. PACKARD, Saranac Lake.

To Otisville, N. Y., from Fort Oglethorpe, Lieut. J. BOGAN, New York.

To Plattsburg Barracks, N. Y., from New York, Capt. G. C. FISK, Buffalo.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, from Camp Crane, *Capt. H. M. RATLIFF*, New York. On completion *to his proper station,* from Camp Crane, Capt. G. E. STANBRO, Springville; from Lakewood, *Capt. J. B. RINGLAND*, Oswego.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. J. B. BOEHM, New York.

To Washington, D. C., Surgeon-General's Office, from Camp McClellan, Major *A. V. MOSCHCOWITZ*, New York; from New Haven, Lieut. H. R. MULLER, New York.

To Williamsbridge, N. Y., from Fort Oglethorpe, Lieut. J. F. LARKIN, Kingston.

The following orders have been revoked: *To Biltmore, N. C., from* Camp Crane, Capt. J. A. COX, Albany. *To Dansville, N. Y.*, from Camp Custer, Major A. S. MOORE, Middletown. *To Fort McPherson, Ga.*, from Fort Oglethorpe, Lieuts. S. W. ROCK, S. STEIN, New York. *To Hoboken, N. J.*, from Camp Devens, Capt. E. D. RUDDEROW, New York. *To Mineola, N. Y.*, Hazelhurst Field, from Princeton, Lieut. P. B. JENKINS, New York.

North Carolina

To Camp Devens, Mass., to examine the troops for cardiovascular disease, from Fort Oglethorpe, Lieut. R. C. RAY, Beaver Creek.

To Camp Gordon, Ga., *base hospital*, from Fort Oglethorpe, Lieut. T. C. KERNS West Durham.

To Fort Bayard, N. M., from Fort Oglethorpe, Major H. T. FRAZER, Asheville.

To Fort Leavenworth, Kan., from Cape May, Capt. G. A. HATCHER, Rosehill.

North Dakota

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. H. L. SAYLOR, Cogswell.

To Fort Benjamin Harrison, Ind., from Camp Joseph E. Johnston, Lieut. L. F. FISHER, Grand Forks.

Ohio

To Boston, Mass., from Fort Oglethorpe, Capt. C. D. SLAGLE, Centerville; Lieut. W. R. KELLER, Dover.

To Camp Gordon, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. W. W. BECK, Toledo. Base hospital, from Fort Oglethorpe, Capt. J. MACLACHLAN, Cleveland.

To Camp Gum Springs, Va., from Camp Leach, Lieut. F. BEEKEL, Cleveland.

To Camp Lee, Va., base hospital, from Camp Sherman, Major R. H. BIRGE, Cleveland.

To Camp Meade, Md., from Camp Polk, Lieut. E. D. ROSEWATER, Cleveland. Base hospital, from Fort Oglethorpe, Capt. E. H. SEASON, Cleveland.

To Camp Pike, Ark., on the board examining the command for cardiovascular diseases, from Fort Oglethorpe, Lieut. D. SELMAN, Cleveland.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. J. S. TETER, Toledo.

To Camp Upton, N. Y., to examine the troops for cardiovascular diseases, from Camp Wheeler, Lieut. H. B. WEISS, Cincinnati.

To Camp Zachary Taylor, Ky., from New Haven Lieut. H. J. POWELL Bowling Green.

To Dansville, N. Y., from Fort Oglethorpe, Lieut. J. R. CRAWLEY, Athens.

To Detroit, Mich., from Fort Oglethorpe, Lieut. E. SHELDON, Bloomdale.

To Fort Wayne, Mich., from St. Paul, Capt. C. O. BEARDSLEY, Ottawa.

To Hoboken, N. J., from Camp Crane, Capt. A. H. STALL, Barberton; from Camp Upton, Lieut. J. B. SAMPSELL, Van Wert.

To Lakewood, N. J., from Fort Oglethorpe, Capt. A. B. LIPPERT, Cincinnati.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. B. J. SAWICKI, Cleveland.

The following order has been revoked: *To Camp Sherman, Ohio,* from Fort Oglethorpe, Lieut. R. R. BOND, Dayton.

Oklahoma

To Fort Des Moines, Iowa, from Camp Travis, Lieut. R. M. HARGROVE, Norman.

To Fort Sill, Okla., base hospital, from Fort Riley, Lieut. G. Y. McKINNEY, Henryetta.

Oregon

To Fort Sill, Okla., base hospital, from Fort Riley, Lieut. E. D. LAMB, Union.

To Newport News, Va., from Camp Lee, Lieut. E. J. CROWTHERS, Austin.

The following order has been revoked: *To Lakewood, N. J.,* from Camp Crane, Capt. J. F. WOOD, Portland.

Pennsylvania

To Army Medical School, from Camp Crane, Lieuts. D. G. MOYER, Philadelphia; D. B. COOLEY, Pottstown. For instruction, from Camp Las Casas, Capt. L. H. MAYER, JR., Johnstown.

To Azalea, N. C., from New Haven, Lieut. J. N. HAYES, Crafton.

To Boston, Mass., from New Haven, Lieut. H. F. BAKER, Philadelphia.

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. W. J. PROBST, Pittsburgh.

To Camp Beauregard, La., to examine the command for nervous and mental diseases, from Camp Wheeler, Lieut. M. H. WEINBERG, Pittsburgh.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. C. W. WANG, Philadelphia; from Newport News, Lieut. G. W. MELLON, Woodlawn. As orthopedic surgeon, from Camp Wheeler, Lieut. M. A. COHEN, Pittsburgh.

To Camp Grant, Ill., from Fort Oglethorpe, Capt. M. C. O'BRIEN, Philadelphia.

To Carlisle, Pa., from Fort Oglethorpe, Lieut. J. W. FISHER, Pittsburgh.

To Charleston, S. C., from the Surgeon-General's Office, Major W. S. CORNELL, Philadelphia.

To Dansville, N. C., from Camp Greene, Lieut. H. A. WICK, New Bethlehem.

To Eastview, N. Y., from Camp Meade, Capt. R. R. DECKER, Orbisonia.

To Fort Logan, Colo., as orthopedic surgeon, from Camp Cody, Lieut. W. W. SCHMID, Pittsburgh.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. C. B. WORDEN, Philadelphia.

To Fort Monroe, Va., from Fort Oglethorpe, Lieut. J. C. KELSO, Cannonsburg.

To Fort Riley, from Fort Oglethorpe, Capt. J. D. BLEVINS, Pittsburgh; Lieut. H. R. FISHBACK, Philadelphia.

To Fort Sill, Okla., base hospital, as commanding officer, from Fort Sill, Capt. J. A. RODDY JR., Philadelphia.

To Hampton, Va., Langley Field, from Fort Oglethorpe, Lieut. A. SILVERMAN, Philadelphia.

To Hoboken, N. J., from Camp Upton, Lieut. M. S. KLECKNER, Allentown.

To Hot Springs, Ark., from Fort Oglethorpe, Capt. G. D. MERVINE, Lock Haven.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. D. J. MORTON, Philadelphia.

To Long Beach, N. Y., from Fort Oglethorpe, Lieut. W. A. LUBKEN, Johnstown.

To Middletown, Pa., from Washington, Lieut. C. S. ORRIS, Tarontun.

To Mineola, N. Y., Hazelhurst Field, from Hoboken, Lieut. F. P. LYTLE, Birdsboro.

To Newport News, Va., from Camp Lee, Lieut. C. E. LERCH, Wyomissing.

To Pittsburgh, Pa., from Camp Crane, Capt. W. F. ROSS, Aspinwall.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Wadsworth, Capt. C. C. MARSHALL, Sharon; from Lakewood, Capt. W. P. HUGHES, Pittsburgh.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. W. H. FURNESS, [illegible] n the Surgeon-General's Office, Lieut.-Col. E. [illegible]

To Washingt[illegible] Hospital, from Fort Oglethorpe, Lieut. A. P. HYDE, Sharon.

To West Baden, Ind., from Fort Oglethorpe, Lieut. D. T. DITCHBURN, Arnot.

To Williamsbridge, N. Y., from Camp Upton, Major J. R. V. WOLFE, Norristown.

The following order has been revoked: *To Cape May, N. J.*, from Fort Oglethorpe, Lieut. J. P. ROTH, Ashland.

Philippine Islands

To report to the Surgeon-General for assignment to duty from Philippine Department, Major W. C. *von* KESSLER.

Rhode Island

To Camp Devens, Mass., base hospital, *from* Camp Jackson, Major F. T. FULTON, Providence.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Carlisle, Pa., Lieut. E. S. CAMERON, Providence.

South Carolina

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Capt. G. T. TYLER, Jr., Greenville.

To Walter Reed General Hospital, D. C., from Camp Crane, Capt. R. C. BROWN, Lancaster.

To West Baden, Ind., from Fort Oglethorpe, Lieut. J. E. PRESSLY, Abbeville.

South Dakota

To Newport News, Va., from Camp Lee, Lieut. C. R. SENESCALL, Veblen.

The following order has been revoked: *To Lakewood, N. J.*, for instruction, from Camp Crane, *Lieut. T. J. DEVEREAUX*, Aberdeen.

Tennessee

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. L. A. MITCHELL, Nashville.

To Camp McClellan, Ala., on the board examining the command for *cardiovascular diseases, from Fort Oglethorpe, Lieut. J. L. BIBB, Chattanooga.*

To Camp Shelby, Miss., from Camp Wheeler, Lieut. W. B. LUNSFORD, *Murfreesboro.*

To Fort Sam Houston, Texas, base hospital, from San *Antonio*, Lieut. R. F. PATTERSON, Jr., Knoxville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Lee, Capt. D. R. PICKENS, Nashville.

Texas

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. H. M. BUSH, San Antonio.

To Camp Holabird, Md. as assistant to camp surgeon, *from Fort Oglethorpe*, Capt. M. M. CARRICK, Dallas.

To Camp Logan, Texas, to examine the command for nervous and mental diseases, from *Camp Pike, Lieut. F. O. CALAWAY, Austin.*

To Camp MacArthur, Texas, from *Fort Oglethorpe*, Lieut. M. B. BADT, Fort Worth.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. W. C. WRIGHT, Farmersville.

To Fort Sheridan, Ill., from Camp Pike, Lieut. F. W. CARRUTHERS, *Dallas.*

To Hoboken, N. J., from Camp Dix, Lieut. H. E. HOKE, Waco.

To Jackson Barracks, La., from Camp Shelby, Lieut. E. W. RHEINHEIMER, El Paso.

To Key West Barracks, Fla., from Camp Shelby, Lieut. J. C. FALVEY, Humble.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. W. R. MOORE, Spur; from New Haven, Lieut. J. W. SHERRILL, Temple.

To Newport News, Va., from Camp Lee, Lieut. F. B. GOOCH, Temple.

To Scituate, Mass., as camp surgeon, *from Fort Oglethorpe, Capt.* H. F. BLAILOCK, McGregor.

To Whipple Barracks, Ariz., from Fort Oglethorpe, Lieut. N. SNYDER, Brownwood.

The following order has been revoked: *To Walter Reed General Hospital, D. C.*, from Camp Meade, Lieut. J. CAMP, Pecos.

Utah

To Hoboken, N. J., from Camp Logan, Capt. E. R. DUMKE, Ogden.

Vermont

To Camp A. A. Humphreys, Va., from Edgewood, Md., Capt. S. L. GOODRICH, Waterbury.

To Hoboken, N. J., from Camp Upton, Capt. W. D. BOWEN, Saxtons River.

Virginia

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. W. H. CRAIG, Richmond.

To Chicago, Ill., from Fort Riley, Lieut. W. PIERCE, Ivanhoe.

To Hoboken, N. J., from Camp Meade, Lieut. J. W. DEVINE, Lynchburg.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. J. W. ROBERTSON, Onancock.

To report to the commanding general, Southeastern Department, from Charleston, Lieut. H. S. HENKEL, Brownsburg.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Abraham Eustis, Major L. J. REGAN.

The following order has been revoked: *To Camp Wadsworth, S. C.*, base hospital, *from* Camp Crane Lieut. E. R. FERGUSON, Roanoke.

Washington

To Newport News, Va., from Camp Lee, Capt. A. SHAW, Anacortes.

Wisconsin

To Camp Jackson, S. C., from Camp Wheeler, Major, M. W. HALL, Mondovi.

To Chicago, *Ill.*, from Camp Wheeler, Lieut. B. O. BENDIXEN, Kewaskum.

To Hoboken, N. J., from Camp Crane, Capt. W. P. FORKIN, Chilton.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. B. F. KOCH, Wauwatosa.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Custer, Lieut. H. F. DERGE, Eau Claire.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. W. P. MILLER, Milwaukee.

The following order has been revoked: *To Fort Des Moines, Iowa*, from Fort Riley, Capt. W. A. LADWIG, Wausau.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

KENTUCKY

New Officers.—At the annual meeting of the Jefferson County Medical Society, December 16, the following officers were elected: president, Dr. Claude G. Hoffman; vice presidents, Drs. Alphons R. Bizot and W. Barnett Owen; secretary, Dr. David Y. Keith, and treasurer, Dr. Henry B. Scott, all of Louisville.

MARYLAND

Johns Hopkins Unit Given Sailing Orders.—According to a cablegram dated from Paris, the Johns Hopkins Hospital Unit has received its sailing orders. This unit went abroad a year and a half ago. It was one of the first hospital units to go to France after this country entered the war. It is expected that the unit will be home about the middle of January.

Influenza May Cause Hospital at Frederick to be Closed.—Thirteen nurses at the City Hospital, including the superintendent, are ill with influenza and so crippled is the nursing force that it may be necessary to close the hospital unless help can be secured from other cities. All possible efforts are being made to secure help from other places. To relieve the situation as much as possible, twenty patients considered well enough to leave the hospital were sent to their homes, leaving twenty-two surgical and medical cases that must be given attention. No influenza patients have been received at the hospital, but in some manner the disease developed among the nurses. These cases are completely isolated. While conditions have improved, the epidemic has not abated in this city and in Frederick County.

State Association Assists Medical Officers.—Because many physicians on entering military service failed to send a list of their patients to the secretary of the state association, it is impossible for the state society to notify the patients of these physicians of their return to civil practice. To meet this situation the Medical Chirurgical Faculty of Maryland is supplying, in response to his application, a sufficient number of cards to each of its members as he again takes up civil practice to permit him to notify his patients and consultants in the name of the state organization that he has resumed practice. The card reads: "The Medical and Chirurgical Faculty of the State of Maryland announces that Dr....................... of .... has resumed the practice of medicine, having been honorably discharged from the Military Service of the United States."

MASSACHUSETTS

Somerville Physicians Change Hours.—The Somerville Medical Society has issued a notice systematizing the practice of medicine so the physicians may be able to see more patients. They have dropped the morning office hours and have adopted uniform hours from 2 to 7 p. m., excepting Sundays and holidays. Office hours are reserved for office patients, the other hours being occupied in house visits.

MICHIGAN

Smallpox.—Five new cases of smallpox were reported, December 10, in the epidemic at Adrian, and general vaccination was in progress. Influenza and other infectious diseases were less numerous, and it was expected that the schools would be reopened shortly.

MISSISSIPPI

Hospital Chartered.—A charter has been provided by the governor for the Ivy Hospital, West Point. It will have a capitalization of $7,000 and will be incorporated by E. P. and M. D. Ivy.

Personal.—Dr. Robert S. Curry, director of the bureau of venereal diseases of the state board of health, Jackson, has resigned on account of ill health.——Dr. M. L. Batson, Leakesville, has been appointed superintendent of the State Institution for the Blind, Jackson.——Dr. Roland Houston Cranford, Moselle, has been appointed superintendent of the Southern Mississippi Charity Hospital, Laurel.

Health Officers Hold Meeting.—At the annual meeting of the Mississippi Health Association held in Jackson, the first week in December, the following officers were elected: president, Dr. H. F. Harrison, Florence; vice presidents, Drs. Daniel J. Williams, Gulfport, Henry Boswell, superintendent of the State Tuberculosis Sanatorium, Magee, and W. D. Beacham, Summit, and secretary, Dr. Waller S. Leathers, University, executive secretary of the state board of health. Among the principal subjects for discussion were, the smallpox problem, the control of malaria, and rural sanitation.

MISSOURI

Hospital for Negroes.—The municipal authorities of St. Louis have purchased the buildings formerly occupied by the National University of Arts and Sciences and have altered and equipped them to serve as a city hospital for negroes. The staff of the hospital will be composed of negro physicians. Dr. Roscoe C. Haskell has been appointed superintendent of the institution.

Released from German Prisons.—The following Missouri physicians, who were held prisoners by Germany, have been released and probably now are in France or on their way home: Capt. Arthur H. Sewing, St. Louis; Capt. John F. Hardesty, Winfield, formerly of St. Louis; Lieut. Henry L. Rothman, St. Louis; Lieut. Louis M. Edens, Cabool, and Lieut. Harold A. Goodrich, Webster Groves.

Personal.—Dr. Abra C. Pettijohn, Brookfield, formerly superintendent of State Hospital No. 2 and later superintendent of the Eastern Oklahoma Hospital for the insane at Vinita, is now resident physician at the Dr. Charles R. Woodson Sanitarium, St. Joseph.——Dr. Adrien S. Bleyer, St. Louis, has arrived in France and has been assigned to the Children's Bureau of the American Red Cross.

Open-Air School for Subnormal.—An open-air school, combining the features of a boarding school and day school for girls of subnormal physique and deficient mental development, has been established by the St. Louis Tuberculosis Society, and the public school authorities at St. Louis. It is said to be the first institution of its kind, and the experiment will be tested for six months. The school opens with fifteen children in attendance.

MONTANA

Anaconda Isolation Hospital.—At a meeting of the city board of health of Anaconda, December 5, it was ordered that the capacity of the City Isolation Hospital be doubled. This will give accommodation for twenty-four patients.

Personal.—Dr. Max W. Barbour, Helena, has been reappointed physician of Lewis and Clarke Counties.——Dr. A. D. McDonald, superintendent of the State Tuberculosis Hospital, Galen, and for many years a representative in the state legislature, is reported to be seriously ill and has gone to Portland, Ore., for an operation.——Dr. Archie E. Williams, Havre, has been reelected physician of Hill County.——Dr. Daniel J. Donohue, Butte, president of the state board of health and major, M. C., Montana, N. G., was seriously injured, December 9, in a collision between his automobile and a street car.

NEW YORK

Personal.—Frank Richardson of Cambridge has been appointed commissioner of narcotic drug control by Governor Whitman.

Narcotic Drug Control Department Organizes.—November 1, the work of the Bureau of Habit Forming Drugs was transferred to the Narcotic Drug Control Department which was created by an act of the legislature of 1918. The new department will operate under the provisions of the habit-forming drug law of 1917 until Feb. 1, 1919, when that portion of the 1918 law relating to the sale, use, etc., of narcotic drugs becomes effective.

Penalty for Violation of Orders of Health Officers.—At Niagara Falls the city council passed an ordinance, effective December 10, making any violation of an order of the city health officer, Dr. Walter A. Scott, punishable by a sentence of six months in jail or a fine of $50 or both. Under the public health law the health authorities are obliged to bring an action in a civil court for a $100 penalty for violation of quarantine. The health officer showed that there had been 293 deaths from influenza since the beginning of the epidemic, and that there had been 6,049 cases of the disease. Of the deaths, 112 occurred since November 4, when the first general quarantine was lifted. The ban was restored after it had been off for two weeks.

New York City

Pasteur Institute Closed.—The Pasteur Institute of New York has closed its doors permanently, after nearly thirty years of service. Dr. George Gibier Rambaud, the last physician at the head of the institute, has received a commission in the National Army and has been ordered to service in France. In his valedictory for the institute he gave as the reason for discontinuing the work that the institute had fulfilled its purpose by introducing the Pasteur treatment into this country so that it was now given by all well appointed hospitals. Since 1910, the institute has treated more than 10,000 patients, four fifths of them without charge.

Health Board Stations to Sell Emulsified Milk.—Owing to the fact that the high price of milk has inflicted injury to the health of the city, and especially of the younger generation, the department of health announces that there will be placed on sale at the board of health stations an emulsified milk manufactured by the department of markets. This milk has been highly recommended by pediatricians, who say that it is equal to "Grade A" milk. The emulsified milk is made of ordinary milk with the butter fats extracted and the water dried off. This powder is the basis of the emulsified milk. It is to be retailed so as to supply emulsified milk at 11 cents a quart.

Slight Increase in Influenza.—For the week ending December 21 there were 1,707 deaths from all causes in this city, a rate of 15.17 per thousand population against 1,612, a rate of 14.66, for the corresponding week of 1917. This increase is due to influenza and pneumonia. The mortality from other disease is below normal; this is particularly true of such communicable diseases as measles, scarlet fever, diphtheria and whooping cough. The death rate of infants for the above named week was 76 per thousand births as against 89 for the corresponding week of 1917. Deaths due to organic disease were also below normal, while for tuberculosis they were approximately the same as for 1917.

Many Wounded Soldiers and Sailors Here.—There were in the hospitals of New York City and the vicinity, December 24, 42,077 sick or wounded soldiers, sailors, marines and nurses. The hospitals include the Debarkation, located in the old Greenhut Store building, Ellis Island, Hoffman Island, Grand Central Palace, Polyclinic, Fox Hills and the Gun Hill Road Hospital. The Red Cross provided a Christmas tree for every ward in these hospitals. Canes were distributed to every enlisted man, inscribed "Red Cross, 1919." Some 3,000 sailors and marines received fountain pens and nothing was left undone to make Christmas merry for every man in these hospitals.

Personal.—Dr. Anthony Bassler has been appointed professor of gastroenterology at Fordham University Medical School.——Dr. William V. P. Garretson has recently been appointed consulting neurologist to the Hospital of Functional Reeducation of Disabled Soldiers and Sailors, which is affiliated with Cornell University Medical College.——Dr. Ralph Herz, who until recently has been resident physician and pathologist of the Metropolitan Hospital, Blackwell's Island, has gone to Rochester, Minn., to become a member of the staff of the Mayo Clinic.——Dr. Nathaniel Blitzer, chairman of Local Draft Board 98, who was indicted on the charge of irregularities in connection with the enforcement of the selective draft law, has been exonerated, there being no evidence to sustain the charge.

Court Finds Difficulty in Defining "Diagnosis."—In the case of August Ziegler, a druggist, brought before the Long Island City Police Court, December 28, for practicing medicine without a license, the magistrate reserved decision for several days in order to consider the definition of "diagnosis." The testimony brought out showed that a woman had gone to the drug store complaining of a pain under her shoulder blade. Ziegler told her to go home, apply a mustard plaster, and go to bed, and to paint the sore spot with iodin. Being no better she returned two days later when he told her she had pleurisy and gave her a mixture to take. The accused admits this much but denies that he made a diagnosis of the ailment. Dr. Briggs, president of the Queens County Medical Society, called in to define "diagnosis," said that a physical examination was necessary while another physician call to testify stated that a physical examination was not necessary in order to constitute a diagnosis.

OHIO

Social Disease Bureau Established.—To cooperate with the U. S. P. H. S., the state department of health and the Cincinnati Health Department has established a bureau of social diseases, with offices in the Blymyer Building under the charge of Dr. Clarence J. Broeman. Clinics will be conducted on Tuesdays, Thursdays and Saturdays from 7 to 8 p. m.

Call District Physicians.—In Cincinnati, December 12, Dr. William H. Peters, Cincinnati health officer, had printed in the newspapers a list of district physicians in the city, advising citizens in need of medical services to employ them in instances in which they could not get the services of their regular physicians on account of the great number of influenza cases.

Personal.—Dr. Charles G. Augustus, U. S. P. H. S., recently appointed assistant director of public health of Springfield, has assumed the duty of his new position.——Dr. William H. White, Cleveland, formerly chief medical examiner of the state industrial commission, is said to have failed to secure reinstatement in that position, when the supreme court, December 10, granted the application of the commission preventing the Franklin County common pleas court from hearing Dr. White's appeal.

Qualify for State Hospital Positions.—The state civil service commission, Columbus, announced, December 12, the record of the examination held, December 10, for superintendent of the Cleveland State Hospital. In this competition Dr. Guy H. Williams, formerly assistant at Columbus State Hospital led, Dr. Harry H. McClellan, Dayton, formerly assistant superintendent at the Dayton State Hospital, was second, and Dr. Paul J. Alspaugh, assistant physician at the Massillon State Hospital, was third.

PENNSYLVANIA

Golden Jubilee.—The Medical Society of Franklin County will celebrate its golden anniversary on Jan. 21, 1919.

Physicians Found Guilty.—Dr. Ellsworth J. Trader, Pittsburgh, is said to have been convicted by a jury in the United States District Court, December 12, on an indictment containing twenty-one counts charging violation of the Harrison Narcotic Law. The Assistant United States Attorney announces that the defendant would soon be brought on other charges involving violation of the same law.

Supply of Nurses Deficient.—The state health department was hard pressed in the original outbreak of influenza and again in the present flareback affecting Altoona, Tyrone, Erie, Wilkes-Barre and other cities, for physicians and nurses. In many communities families insisted on the services of trained nurses. This drained the supply until the advice of the state health department was followed to pool interests by districting towns. This allowed a trained nurse and a physician for a given number of patients.

Personal.—Dr. William McKenzie, Conshohocken, presented a $100 liberty bond, with coupons attached, to the Montgomery County Medical Society, to be used as a nucleus of a permanent fund for a new home for the society.——Lieut. Ernest J. Hoover, M. C., who has been attached to the 369th infantry and stationed back of the front lines since May 12, is reported to be the first Altoona physician wounded, his leg having been broken when his air post was blown up by a shell.——Dr. Julius T. Vissel, Roaring Spring, suffered a cerebral hemorrhage, December 18, and is reported to be in very serious condition.——Dr. F. E. Downes, city superintendent of schools of Harrisburg, who had been critically ill, is reported to be convalescent.——Dr. Horatio C. Wood, Jr., professor of therapeutics at the University of Pennsylvania, is seriously ill in the University Hospital. It is feared he has contracted typhoid fever. During the influenza epidemic Dr. Wood devoted all his time to attending students of the Student Army Training Corps.——Dr. Frank C. Abbott of Jefferson Hospital unit has been decorated by the president of the French Republic with the "Medaille de la Reconnaissance Francaise." Dr. Abbott served in France more than three years before America entered the war.——Dr. John A. Presper has received word from his son, Capt. Elmer J. Presper, M. R. C., that he had been released from a German prison camp.——Major E. Hollingsworth Siter, M. R. C., now in France, will command an American Base Hospital to be established in Germany. For some time Major Siter has had charge of Base Hospital No. 68, A. E. F., at Mars-Sur-Allier.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about $250, will be made on July 14, 1919, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1919. Each essay must be sent without signature, but must be plainly marked with the motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned on application within three months after the award. No Alvarenga Prize for 1918 was awarded.

Philadelphia

Influenza Still Prevails.—Influenza still prevails, but not to an alarming extent. There were thirty-seven new cases reported to the bureau of health, December 20.

Aid for Epidemic Patients.—For the purpose of research as well as aid to convalescent influenza patients, the Visiting Nurse Society has launched a complete follow-up investigation of the 4,050 cases of influenza under its care during the epidemic. The purpose is twofold: to help those who need money and to keep in touch with those who have apparently recovered without regaining normal vigor. The Emergency Aid and the National League for Women's Service are cooperating with the Visiting Nurses' Society in this follow-up work.

Personal.—Dr. Mervin Ross Taylor has been appointed medical officer of the Bell Telephone Company of Pennsylvania and associate companies.——Lieut. Orlando H. Petty, who served as surgeon with the Fifth Marines at Chateau Thierry, Belleau Wood and Soissons and who was gassed at Chateau Thierry, landed in New York, December 18.——Lieut. George G. Ross, Lieut.-Com. Robert G. Le Conte, Lieut.-Com. James E. Talley, Lieut. B. B. Vincent Lyon and Lieut. Jacob L. Herman have returned home from the war zone in France.——Dr. George Slonimsky has been appointed assistant medical inspector of the bureau of health.——Capt. Edwin S. Cooke, M. C., after fourteen months' service at a base hospital at Camp Meade, has returned to civil life and will resume his practice.——Dr. Edward Martin has accepted the position of health commissioner of Pennsylvania.

TENNESSEE

State Laboratory to Be Made Permanent.—At the meeting of the state board of health in Nashville, December 11, it was determined to continue as a permanent feature of health work in the state the laboratory recently established. A department of sanitary engineering was also one of the matters discussed. Vital statistics and the control of venereal diseases were other matters taken up. Influenza occupied the attention of the board during the meeting, Dr. Robert C. Derivaux of the United States Public Health Service giving a talk on the work of combating the epidemic in Nashville and Davidson County.

VIRGINIA

Society Meeting.—At the meeting of the Lynchburg and Campbell County Medical Society held at Lynchburg, December 2, Dr. John W. Dillard, was elected president, and Robert P. Kelly, both of Lynchburg, vice president, and Dr. Robert N. Younger, Snow Creek, secretary-treasurer.

Personal.—Dr. Robert C. Bryan has been appointed a member of the surgical staff of the Richmond City Home, to succeed Dr. H. Norton Mason, who has resigned.——Dr. Paul C. Spangler, Sutherland, charged with selling narcotics to soldiers, was exonorated at a hearing before a United States Commissioner, November 20.

CANADA

Hospital News.—The Calgary Hospital has had financial difficulties during the past year, and it is seeking an additional grant of $17,000 from the city to carry on the work for the balance of the year.

Personal.—Lieut.-Col. Charles A. Hodgetts, C. M. G., Ottawa, formerly medical adviser to the Canadian Conservation Commission, who has been overseas more than four years, has returned to Ottawa. Colonel Hodgetts was Canadian Red Cross Commissioner for three and a half years, and then entered the services of the British Ministry of Health, being stationed at various places in Ireland and England.——Capt. F. A. Atkinson, C. A. M. C., Alberta, has been awarded the Military Cross.——Dr. Ridley Mackenzie, McGill University, Montreal, is now on military duty at Bournemouth, England.——Dr. Arnold A. Halliday has returned from overseas and resumed practice in Toronto.

Personal.—The late Dr. A. Orr Hastings, brother of Dr. Charles J. C. O. Hastings, M. O. H., Toronto, left an estate of more than $100,000. More than $30,000 goes to hospitals and charitable purposes, the Hospital for Sick Children getting $4,000, and the Infants' Home, $2,000. The balance of the estate will go to relatives of the deceased.——Dr. Jacob Segal has been appointed medical superintendent of the Earl Grey Sanatorium, Regina, Sask., to replace Dr. Lester G. Houle, who has been transferred to the Tranquille Sanatorium at Kamloops, B. C.——Lieut.-Col. Percival K. Menzies, for the past year in charge of the surgical work at Orpington Hospital, England, has returned to Toronto.——Lieut.-Col. C. E. Cooper Cole has returned from overseas to Toronto.

Ontario Medical Act.—The Ontario government has given the medical profession another hearing before considering the new Ontario Medical Act. The examination question was under consideration. The University of Toronto favored one examination, and not any to be held by the Medical Council; but Dr. James C. Connell of Queen's University thought it not unreasonable that students should be required to pass the two examinations. Dr. Robert Ferguson, London, president of the Ontario Medical Council, speaking for the Western University of London, stated he was not aware that the Western University favored the abolition of the second examination. He also thought that the universities should each be considered a unit and have one representative on the Medical Council. At present the universities have six. He did not think it right that the University of Toronto should have three. Dr. Edmund E. King, Toronto, was opposed to Mr. Justice Hodgins' report that the representatives should be chosen by general election of the profession in the province. He said that the Medical Council and the profession generally favored the system of territorial election as at present—eight outside Toronto, and two within that city. The homeopaths had too many already. Dr. Alexander W. Crichton, Castleton, Ont., thought that the council should not have power to suspend the registration of a practitioner.

GENERAL

The Waste of Influenza.—As reported from Washington, December 10, out of 338,257 cases of influenza among the troops there were 17,000 deaths during the epidemic. In an address before the Association of Life Insurance Presidents in New York early in December, Henry Moir, president of the Actuarial Society of America, suggested that the total of about 400,000 deaths from the disease in this country meant an economic waste of ten million years.

Southern Surgeons Elect.—At the thirty-first annual meeting of the Southern Surgical Association held in Baltimore, December 18 to 20, the following officers were elected: president, Dr. J. E. Thompson, Galveston, Texas; vice presidents, Dr. Charles R. Robins, Richmond, Va., and George A. Hendon, Louisville, Ky.; secretary, Dr. Hubert A. Royster, Raleigh, N. C. (reelected), and treasurer, Dr. Guy L. Hunner, Baltimore (reelected). New Orleans was selected as the next place of meeting.

Comes to Aid Blind Soldiers.—Sir C. Arthur Pearson, head of the British National Institute, which is devoted to the care of men who have lost their sight in the war, and himself blind, sailed for the United States and Canada, December 20. The object of his visit is to confer with those responsible for the care of American soldiers blinded in the war and with Canadian authorities regarding the future welfare of Canadian soldiers trained at St. Dunstan's Hotel for Blinded Soldiers and Sailors, London.

Influenza.—The prevalence of influenza throughout the country is still great, with the general death rate increased over the normal by this disease and its complicating pneumonia. In no place, perhaps, is the disease occurring as frequently as at the height of the first wave in October and November. In most places there is a gradual subsidence as compared with the situation the first week or two following the peace celebrations, when there was an accession of cases. Indiana, for instance, reports a general and notable improvement, as do Wisconsin and Michigan. The army camps report a decided improvement. December 21, the Ohio State Medical Association through its executive secretary asked the Secretary of War to release at least two hundred Ohio physicians from the military service to aid in combating influenza in the rural districts of the state. Montana reports a regression in most communities, but in some there is still necessity for active measures. At Augusta, Me., December 17, restrictive measures, which had been suspended, were again to be enforced. In Alabama the disease was still the subject of concern by the state and local health authorities, especially at Montgomery. At Richmond, Va., it was reported, December 18, that of the 24,000 city schoolchildren one third were absent from the schools on account of the disease and the quarantine requirements in families having the disease. Illinois shows some improvements, but state officials warn that precautionary measures must not be relaxed. In Chicago and the north shore villages the situation was improving December 24. On that date there were 381 new cases of influenza and 126 new cases of pneumonia in Chicago, with eighty deaths from influenza and forty-three from pneumonia. There were twelve deaths in Evanston and the ban was not to be lifted on Christmas.

FOREIGN

Agitation in Spain for a Minister of Public Health.—The profession in Spain is making strenuous efforts for the centralization of the public health service as a government cabinet department. The *Medicina Ibera*, among other Spanish journals, is conducting an active propaganda, and is publishing a series of letters from leading physicians expressing their views on the subject. The letter from Ramon y Cajal is reproduced by photograph. He strongly endorses the idea and especially at the present moment, but he doubts whether the powers that be will consent to the creation of a new cabinet department, saying: "The higher spheres have little heed for hygiene, and to this appeal they will reply with arguments, not without some basis, as to the economical obstacles and the necessity for subordinating the hygienic measures, which often raise questions of a public order, to the ministerio de la Gobernacion, the only one, aside from the minister of war, which can impose effectual coercion." Parenthetically, Professor Cajal refers to his poor health, saying: "The cerebral arteriosclerosis from which I am suffering has become so much worse recently that I am obliged to refrain from writing, speaking and reading. Five minutes of any conversation induce intolerable congestion and headache, so I am compelled to a silence and solitude which are an actual martyrdom for me. I regret that I am unable to take up this matter of a ministry of public health as I should like to." He is now in his sixty-sixth year.

MEXICO LETTER

Mexico City, Dec. 12, 1918.

Epidemic of Influenza

The southeastern states of Mexico, Tabasco, Campeche and Chiapas, have now been invaded by the epidemic of influenza, and it is seizing numerous victims. When one reflects that the epidemic invaded Mexico from the north, at Laredo, and has followed a course from north to south, there is reason to fear that the disease will spread to Guatemala and invade Central America.

The Food Supply

Thanks to the good will of the government of the United States, the restrictions on the importation of foodstuffs into this country have been largely rescinded, and large quantities of wheat and flour have begun to arrive, which will reduce the price of bread to the benefit of all.

The University of Michoacán

On the first day of the new year there is to be inaugurated in the city of Morelia, state of Michoacán, the University of San Nicolas de Hidalgo. It will occupy the same buildings as the old Colegio de San Nicolas, founded during the Spanish rule, and of which Don Miguel Hidalgo, the father of his country, was the first alumnus and rector.

The new institution owes its inception to the governor, Ing. P. O. Rubio. It will comprise departments for law, medicine, pharmacy, engineering and belles-lettres. Dr. A. Oviedo is to be the rector, and various eminent physicians in the capital have been appointed honorary professors in the nascent university.

Child Welfare Congress

Official notice has been received of the postponement of the Congreso del Niño, which was to have been held this month in the city of Montevideo. Mexico had been invited to send delegates and had already appointed them.

Scarcity of Therapeutic Biologic Products

On account of the restrictions imposed on the exportation of therapeutic biologic products by the United States during the war just passed, there has been a notable scarcity of these curative agents. The production of therapeutic serums in the state Instituto Bacteriologico Nacional is not large, and in the private laboratories only bacterins are produced. There has been a special lack of antipneumococcus serum, and the little on hand has been held at exorbitant rates. It is hoped that in a short time this state of affairs will be remedied by the reestablishment of normal commercial relations.

Personal

Dr. F. Medina has been appointed secretary of the Mexican legation at Paris, and Dr. L. Rivero was given the position of third secretary. Both will soon leave for France, going by way of New York.

BUENOS AIRES LETTER

Buenos Aires, Nov. 11, 1918.

Epidemic of Influenza

From the middle to the end of October the epidemic spread until two thirds of the population had been attacked. Fortunately the mild cases predominated. The number of cases developing recently is smaller, but not the number of fatal cases. As a whole, however, the mortality has been much less than in the countries around us. In the last ten days of October there were 1,477 deaths, equal to the total death rate for the month of February. In the first five days of November, the average of deaths reached 162 daily, that is, twice the normal death rate of the city. Lesions in the lungs or bronchi or both were responsible for most of the fatal cases, but in some cases there were choleriform gastrointestinal symptoms suggesting cholera. Hemorrhages from the bowel, nose, etc., were not infrequent. Some of those affected presented eruptions resembling urticaria or measles, and exceptionally there was a hemorrhagic exanthem. Bacteriologic examination in the Hospital Muñiz revealed the Pfeiffer bacillus in the sputum of 60 per cent. of the patients, usually the graver cases. In a little more than 50 per cent., pneumococci or streptococci were found. In the fatal cases the Pfeiffer bacillus was found in 50 per cent., sometimes pure, but frequently associated with the pneumococcus or other germs.

The government, which neglected sanitary vigilance at the beginning, then took rigorous measures, closing the schools, cinemas, theaters and cafés. The public places were constantly disinfected, the streets profusely watered, etc.

The epidemic spread throughout the entire country, but nowhere has it yet acquired a gravity to compare with what has occurred in Rio de Janeiro and at Santiago in Chile.

Subscriptions for French Physicians

The national sympathy, which has always been on the side of the Allies, has just found expression anew in the subscriptions for the War Fund for French Physicians. The sum of 40,000 francs has been collected here for the fund.

Epidemics of Dysentery at Rioja and Catamarca

For the first time, dysentery has been officially recorded here and studied. There was an epidemic at Salta in 1917 and at Corrientes, but no bacteriologic work was done. The disease attacked children mostly, and the death rate was high. The predominant germs were the Flexner and atypical forms of dysentery bacilli. Diphtheria antitoxin gave appreciable results in treatment, but no decisive judgment is yet possible.

Dr. Escomel's Lecture

Dr.Edmundo Escomel of Arequipa, Peru, member of the Lima Academia de Medicina, recently delivered an address on intestinal trichomonosis at the Facultad de Medicina here.

Power of Students in Electing University Officers

The new government decree regulating the elections of officers for the universities provided that the dean, the Consejo Directivo and the Consejo Superior Universitario were to be elected by an assembly composed of the titular professors, an equal number of *profesores suplentes* and an equal number of students. The consequence was that the students made out lists and got every one of their candidates elected. In the Facultad de Medicina, Dr. Julio Mendez was elected dean; his nomination was resisted by the professors. When it came to a vote, he obtained the votes of fifty-eight students and of thirteen professors, while seventy-three of the professors cast their votes for Dr. Palma. The students then formulated diverse protests and declared a strike, insisting on the annulling of the electoral action. Dr. Palma then handed in his resignation, and a second assembly was held. On this occasion the students, without insisting on the annulling of the anterior election and without dwelling on the defects and irregularities on which they had previously laid great stress, succeeded in electing their candidate. It is very certain that the professors refrained from participating in this action.

This reform in the statutes of the university, as is readily seen, gives up the management of the university into the hands of the students.

PARIS LETTER

Paris, Nov. 28, 1918.

Removal of Sequestrums and Repair of Bone

This question was discussed at the recent Congrès français de chirurgie. Dr. de Fourmestraux of Chartres specified the indications for sequestrectomy and for immediate resection at the time of operating, that is, during the first day after the wounding. He claims that abstention is indicated in cases of fracture caused by a bullet coming with full force from an average distance, the fracture not spreading, and containing germs but with little evidence of infection. Recovery is rapid in these cases, which, however, are rather infrequently met. More often it is a question of a comminuted fracture, caused by a shell fragment or a bullet fired at a short distance with explosive effect, which scatters fragments of its jacket on its way. Instead of armed abstention, complete and thorough intervention is indicated. In cases of epiphyseal fracture, the projectile should be located roentgenographically and removed from the nearest surface point without heeding the portal of entry, then proceed to the closure of the articulation and early mobilization.

Dr. Viannay of Saint-Etienne has always obtained speedy results with Ollier's or Leriche's subperiosteal sequestrectomy or the intra-osseous operation of Tuffier. It is hardly possible to keep these patients in the advanced hospitals more than a few weeks, but they recover so quickly that when they leave the ambulance anatomic and functional restoration is complete in some by the eighth week.

Dr. Duvergey of Bordeaux, on the other hand, performs primary sequestrectomy very seldom, in fact, only when the sequestrum is completely denuded of periosteum. The operation required in recent complicated fractures: *débridement*, extraction of the foreign body, and clearing out of the wound, should respect the bone tissue. Carrel's method should be instituted as soon as possible because it overcomes infection effectively, and infection is a factor in the etiology of neuroses. Secondary sequestrectomy is done frequently, but it is indicated only when the presence of the sequestrum is confirmed by the roentgen ray and the probe. The clearing out then should be thorough so as to obviate repeated operations which fatigue and discourage the patient and often disseminate the infection and increase the trauma.

Dr. Salva Mercadé of Paris insists that not only must the adherent sequestrums be respected, but also the ends of the bone fragments themselves, with their stalactites and stalagmites which favor repair. Smoothing of the bone ends is one of the causes of pseudarthroses. Mercadé believes that primary sequestrectomy should be the rule; of thirty-eight patients operated on, only seven required a second operation. He reported sixty-four cases of compound fracture in which sequestrectomy was not done primarily, in which all came to late operation, necessitating much longer treatment. He claims that a compound fracture never escapes sequestrectomy; if not done early it must be done later, and it is in the interests of the patient to operate early.

So far as concern repair of losses of bone substance, surgeons resort to *plombage*, osteosynthesis or grafting as the case indicates. Dr. Duvergey condemns *plombage*, no matter what the substance employed to fill the cavity, because it is eliminated eventually. Dr. Olivier of Paris reported a case in which two *plombages* were done with six months' interval, and the local and general disturbances therefrom nearly necessitated the amputation of the member, and compelled two supplementary operations to remove the filling. Osteosynthesis is indicated in cases with great loss of bone substance and in which cicatrization appears to be impossible. Dr. Patel of Lyon reported fifty cases of osteosynthesis (thirteen of femur, twelve of tibia, twenty-four of humerus, and one of forearm) with only one failure (humerus). Union was effected in from two to six months.

As for bone grafting, surgeons are agreed that this operation should be deferred until several months after the closure of an infected wound. The graft can only be placed itno an aseptic bed. There must not be any scabs or skin eruptions, particularly not eczema, on or near the field of operation. The skin around might be curetted. Otherwise the graft is extruded, when everything must be done over again.

Summer Outings for Children

During the last summer of the war these summer outings for the schoolchildren became quite a feature. Many thousands of small Parisians were thus enabled to escape the menace of German bombs. In a report to the Paris city Council, M. Jean Varenne, commented favorably on the excellent results obtained in the eighteenth arrondissement of Paris by 1,400 children and seventy-six teachers from a stay of several months in the country. He asked that the Conseil municipal continue these outings during peace times because of the important bearing which they have on the future of the race (une oeuvre qui, pour l'avenir de la race, est du plus haut intérêt).

LONDON LETTER

London, Dec. 11, 1918.

The Health of Schoolchildren

The annual report of the chief medical officer of the board of education, Sir George Newman, has just been published. It contains results claimed to be "of exceptional value and extraordinary interest." A test inquiry into the physical condition of town and country children was made without previous warning. The number of children inspected was 1,362,063. In the London group, 7 per cent., and in the country group, 10 per cent. of the elder children were found to be absent from school on grounds of more or less chronic ill health, and after deduction of the blind, deaf, mentally and physically defective and invalid children of this age group drafted to special schools or absent from school, there were found to be suffering from one or more serious defects 24 per cent. of the children present at school. Of these children, 12 per cent. were ill nourished and 19 per cent. were unclean in body. Of the London children, 40 per cent., and of the country children, 65 per cent. had some carious teeth; 11 per cent. suffered from disease of the nose and throat; 10 per cent. had "very serious" defects of vision, while another 13 per cent. had defective eyesight of slightly less severity; 6 per cent. suffered from defective hearing and 6 per cent. from "severe" anemia; 4 per cent. had middle ear disease, 4 per cent. organic heart disease, 4 per cent. skin disease, and 4 per cent. spinal curvature of the "worst grade." These defective children were often two or more years behind their normal school standard, showing how physical weakness reacts on mental efficiency. Effective treatment of the kind now carried on by the board of education confers great benefit. Thus, London had sound teeth in 60 per cent., the country (where treatment is less thorough) in only 35 per cent. London had only 5 per cent. with disease of nose and throat, the country 21 per cent. London furnished only 2 per cent. of verminous heads, the country 8 per cent. Strenuous measures were taken in cleansing the children from vermin. One of the effects of the war has been the increase of uncleanliness and its associate conditions (verminous heads and bodies, ringworm, scabies, conjunctivitis, etc., owing partly to the lessening of parental supervision and partly to the introduction of infection from returning troops. Coming to the effects of the war on the children generally, Sir George Newman declares that the fear that the food rationing would bear hardly on the children has not been realized. In London it was found that the percentage of children in poorly nourished condition in the third term of 1917 was "considerably less than half the percentage found in 1913, the year before the war." Indeed, the figures for the third term of 1917 were the best in this respect ever obtained. The idea that "war bread" caused any bad symptoms was not confirmed on inquiry. Air raids, too, failed to affect the health of children, as it had been feared they might do.

Medical Representation in Parliament

The country is now in the throes of a general election in which the main appeal made by Mr. Lloyd George and his colleagues is that the men who brought the war to a successful conclusion should govern during the period of reconstruction. Medical questions scarcely enter into the election and certainly are not issues. In a previous letter, the formation of a medical parliamentary committee to insure a greater representation of the profession in Parliament was announced. For the nearly 700 seats of the House of Commons the number of medical candidates amounts to thirty-one. It does not appear that the medical parliamentary committee had anything to do with bringing forward any of these candidates, but it is offering to supply speakers to support medical candidates. The idea is that medical members of Parliament should do everything possible in promoting measures to improve the health of the people. Most of the medical candidates are appealing for support as members of the various political parties and, therefore, not as physicians; but in the case of the elections for the universities, for which there are six medical candidates, a special appeal is being made to the medical graduates, who form a large proportion of the electors. These candidates are all men of professional eminence. They are Sir William Whitla (Queen's University, Belfast); Sir Robert Woods (Dublin University); Sir Wilmot Herringham (London University); Sir Watson Cheyne, Dr. Peter MacDonald and Principal W. R. Smith (Scottish universities).

White Bread Again

With the cessation of hostilities, the use of a dark flour constituting a high percentage of the grain is no longer compulsory, and white bread again appears on our tables, to the great satisfaction of most persons. It is curious that although both before the war and during the war the advantages of whole-meal bread, or something approaching it, were pointed out, no impression has been made on the public. Even a press campaign by the most widely read newspaper produced little effect. In spite of dietetic teaching, people prefer what is more pleasing to the eye and gratifying to the palate, white bread.

The Influenza Epidemic

The influenza epidemic is declining in the United Kingdom, but new cases still occur, and pneumonia continues to take a serious toll of life. In India the epidemic has been severe. In Bombay city there were 15,000 deaths, and in Delhi city, of a population of 200,000, the death rate at one time reached 800 daily. In the rural tracts beyond the reach of effective prophylactic measures, the loss has been tremendous. In the Punjab the first signs appeared in August. In September it persisted in a mild form, and from the middle of October until November 8 it was acute. It is estimated that the number of deaths ranges from 5 to 10 per cent. of the population. The death roll is heaviest among young adults and women. The number of deaths in the Punjab is estimated at 250,000. When the final results of the epidemic are summed up, it will probably be found that other provinces have suffered on approximately the same scale. No part of the country seems to have escaped, although the visitation was lightest in Bengal, and even the dry and bracing Himalayan tracts are reported to have been severely attacked.

Venereal Disease and Demobilization

In the middle ages, outbreaks of syphilis followed in the wake of armies. The danger of diffusion of venereal diseases on the demobilization of the present huge armies is therefore to be borne in mind. It is estimated that 2 per cent. of the British army is affected by venereal disease, a proportion which is regarded as much lower than that of the adult civil population. The medical instruction of soldiers with a view to prevention, and the adoption of early treatment, explain the difference. However, the total number of infected soldiers and sailors is estimated at from 200,000 to 300,000, which constitutes a grave danger to the civilian population on demobilization, when the disciplinary influence of army life will cease. The National Council for Combating Venereal Diseases has published recommendations which will no doubt receive the careful consideration of the authorities. The most important is the suggestion that soldiers or sailors should not be discharged while in an infective state.

Marriages

Alfred E. Rhein, Rosedale, Ind., to Miss Susan Pillars Miller, Terre Haute, Ind., November 5.

Philip Embury, to Miss Marie Katherine Stein, both of Basking Ridge, N. J., December 18.

Edward James Lewis, to Miss K[redacted] Sproe[illegible] [illegible]th of Chicago, December 18.

Deaths

Rear Admiral Henry Gustav Beyer ⊕ Medical Director, U. S. Navy, retired; aged 68; died at his home in Washington, December 10. Dr. Beyer was born in Saxony, Germany, ctober 28, 1850, received his preliminary education and took course in pharmacy in Germany, and then entered Bellevue ospital Medical College, from which he was graduated in 1876. He received the M. R. C. S. degree in London, in 1881, and was given the degree of Ph.D. by Johns Hopkins University, in 1887. He entered the Navy, as assistant surgeon, immediately on graduation, was made passed assistant surgeon in 1880, surgeon in 1893, medical inspector in 1905, medical director in 1910, and rear admiral, Feb. 27, 1911, and was retired on attaining the age of 62 years, Oct. 28, 1912. During his thirty-six years of service in the Navy, he had twelve years and ten months of sea service, and three years on special duty at the Smithsonian Institution, Washington, and was on special duty in Washington, for two years. He was professor of hygiene in the Naval Medical School, Washington, from 1904 to 1912, and was also lecturer on Naval Hygiene in the War College, Newport, R. I. He was a member of the Association of Military Surgeons of the United States, National Society for the Study and Prevention of Tuberculosis, American Public Health Association, and American Association of Pathologists and Bacteriologists, and was a prolific contributor to medicomilitary literature.

Rear Admiral Henry G. Beyer, M. C., U. S. Navy, 1850-1918

Hudson J. Winnett, Lincoln, Neb.; Long Island College Hospital, 1870; aged 72; at one time a member of the Nebraska State Medical Association; formerly a member of the City Council and mayor of Lincoln, and state railway commissioner in 1906; trust officer of the Lincoln Trust Company; died in Johns Hopkins Hospital, December 19, after a surgical operation.

William T. Wright, Denison, Iowa; University of Michigan, Ann Arbor, 1882; aged 62; a member of the Iowa State Medical Association and formerly secretary of the Crawford County Medical Society and physician of Crawford County; formerly coroner of Monona County; died at the home of his brother-in-law in Ute, Iowa, November 30, from pneumonia following influenza.

Asa Charles McCurdy ⊕ Major, M. C., U. S. Army, Battle Creek, Mich.; University of Michigan, Ann Arbor, 1908; aged 32; who after training at Camp Crane, Allentown, Pa., went to Italy and was then transferred to France, and attached to the Fifty-Second Engineers; died in Brest, France, November 28, from the effects of a carbuncle on the face.

Charles Hedinger, Canton, Kan.; University of Goettengin, Hanover, Germany, 1842; aged 96; for two years and a half a surgeon in the United States Navy, and later in the Medical Corps, U. S. Army, and surgeon throughout the Civil War; coroner of Pottawatomie County, Kan., for eleven years; died at his home, December 12, from acute gastritis.

Arthur Holmes Brown ⊕ Auburn, N. Y.; Long Island College Hospital, Brooklyn, 1882; aged 64; formerly president of Cayuga County Medical Society, and Auburn Academy of Medicine; a director of the New York State Automobile Association; was instantly killed in an automobile accident, near Camillus, N. Y., December 19.

George K. Sims, Richmond, Va.; University of Virginia, Charlottesville, 1894; aged 53; a member of the Medical Society of Virginia; Acting Assistant Surgeon, United States Army, for four years during and after the Spanish-American War with service in the Philippine Islands and Hawaii; died at his home, recently.

Millville Charles Korb, Chicago; Bennett Medical College, Eclectic, Chicago, 1896; University of Illinois, Chicago, 1907; aged 50; a member of the Illinois State Medical Society; died in the Washington Boulevard Hospital, Chicago, December 21, from nephritis.

George Baney Wolff ⊕ Towson, Md.; Johns Hopkins University, Baltimore, 1912; aged 33; a member of the staff of the Sheppard and Enoch Pratt Hospital, Towson; was shot and instantly killed by Dr. Noburu Ishida, a Japanese member of the staff, December 21.

Paul Morgan Strother ⊕ Lynchburg, Va.; University of Virginia, Charlottesville, 1906; aged 34; a specialist in roentgenology; died November 26, as the result of injuries received in the overturning of his automobile the day before.

Samuel Cecil Bowen, Richmond, Va.; Medical College of Virginia, Richmond, 1905; aged 37; a member of the Medical Society of Virginia; associate professor of laryngology in his alma mater; died in Chicago, December 20, from pneumonia following influenza.

Reese Davis ⊕ Lieut., M. C., U. S. Army, Forest City, Pa.; Jefferson Medical College, 1916; aged 25; formerly intern in the State Hospital of the Northern Anthracite Region of Pennsylvania, Scranton; died in France, September 27, from wounds received in action.

William Chester Smith ⊕ Captain, M. C., U. S. Army, Chicago; University of Louisville, Ky.; 1904; University of Illinois, Chicago, 1913; aged 38; on duty at Camp Sherman, Chillicothe, Ohio; died at that post, December 11, from valvular disease of the heart.

William Pounder Gillespie, Jr. ⊕ Philadelphia; Jefferson Medical College, 1904; aged 37; assistant medical examiner for the Pennsylvania System, at the Broad Street Terminal; died in the Presbyterian Hospital, Philadelphia, October 9, from lobar pneumonia.

William F. Carroll, Macon, Ga.; Medical College of Georgia, Augusta, 1877; aged 68; at one time a member of the Medical Association of Georgia; city physician of East Macon for several years; died at his home, November 30.

Homer Joseph Slocum ⊕ Lieut., M. C., U. S. Army, Carrollton, Ky.; Louisville, Ky., Medical College, 1903; aged 39; on duty at Camp Greenleaf, Fort Oglethorpe, Ga., died at that post, October 17, from pneumonia following influenza.

Robert Newcomb McHenry, Millville, N. H.; University of Pennsylvania, Philadelphia, 1912; aged 29; a member of the Medical Society of New Jersey; coroner of Cumberland County; died in a hospital in Philadelphia, December 17.

Edward B. Greene, Chicago; Northwestern University Medical School, Chicago, 1885; aged 64; at one time a member of the Illinois State Medical Society; died in the North Chicago Hospital, Chicago, December 17, from diabetes.

Edward Sherman Breese ⊕ Dayton, Ohio; Medical College of Ohio, Cincinnati, 1899; aged 52; for several years resident surgeon at the National Military Home, Dayton; died at his home, December 15, from carcinoma of the stomach.

William George Turner ⊕ Captain, M. C., U. S. Army, Fall River, Mass.; Baltimore Medical College, 1904; aged 39; on duty at Fort Benjamin Harrison, Ind.; died at that post, October 11, from pneumonia following influenza.

Joseph Randall Polk, Nashville, Tenn.; Vanderbilt University, Nashville, 1918; aged 27; died at an infirmary in Nashville, December 1, from pneumonia following influenza.

James Richard Kirby, Clinton, Mass.; Baltimore Medical College, 1902; aged 42; a member of the Massachusetts Medical Society; died at his home, September 29, from bronchial pneumonia following influenza.

George M. Paullin, Bridgeton, N. J.; University of Pennsylvania, Philadelphia, 1861; aged 79; Acting Assistant Surgeon in the Army during the Civil War; died at his home, September 18, from heart disease.

Luther A. Rexford, Minneapolis, Minn.; Minneapolis College of Physicians and Surgeons, 1907; aged 36; at one time a member of the Minnesota State Medical Association; died at his home, about December 20.

Abram C. Miller, Turin, N. Y.; University of Vermont, Burlington, 1876; aged 70; health officer of the town and village of Turin and town of Grieg; died at his home, October 13, from pneumonia.

Francis Robert DiMatteo, Newark, N. J.; Baltimore, Md., Medical College, 1903; aged 37; a member of the Medical Society of New Jersey; died at his home, October 13, from pulmonary tuberculosis.

Edwin Franklin Syrop ⊕ Lieut., M. C., U. S. Army, Bayonne, N. J.; University of Maryland, Baltimore, 1916; aged 28; died in Base Hospital No. 78, France, October 27, from lobar pneumonia.

Thomas David Stephens, Penn Run, Pa.; University of Pittsburgh, 1895; aged 50; a member of the Medical Society of the State of Pennsylvania; died in the Indiana, Pa., Hospital, December 13.

William James Douglas, Newark, N. J.; University and Bellevue Hospital Medical College, New York City, 1908; aged 34; died at his home, October 16, from pneumonia following influenza.

Joseph M. Shorts, West Liberty, W. Va. (license, West Virginia, 1881); aged 66; died at the North Wheeling, W. Va., Hospital, December 18, from pneumonia following influenza.

Charles W. Ott ⊕ Higginsville, Mo.; Kansas City, Mo., Homeopathic Medical College, 1899; aged 40; died at his home, October 4, from lobar pneumonia, following influenza.

Russell Ernest Boyle, Alliance, Alberta; University of Manitoba, Winnipeg, 1916; aged 30; died at his home, November 10, from pneumonia following influenza.

Davis King Summers ⊕ Lieut., M. C., U. S. Army, Chattanooga, Tenn.; Emory University, Atlanta, Ga., 1915; aged 30; was killed in battle in France, March 1.

Louis Aimé Maynard, Worcester, Mass.; University of Vermont, Burlington, 1889; aged 58; died in his apartment, December 5, from pulmonary hemorrhage.

Otto Andrew Koch, Germantown, Philadelphia; University of Pennsylvania, Philadelphia, 1896; aged 47; died at his home, October 30, from tuberculosis.

Lynn Luzerne Lorenz ⊕ Rockford, Iowa; University of Illinois, Chicago, 1912; aged 29; died at the home of his parents in Rockford, December 1.

Adolphe Olivier, Montreal, Que.; Laval University, Montreal, 1918; aged 27; died in Montreal in October from pneumonia following influenza.

Aristide Dubuc, Montreal, Que.; Laval University, Montreal; aged 28; died in Montreal in October, from pneumonia following influenza.

Frank Justin Barker, Concord, Mass.; Dartmouth Medical School, Hanover, N. H., 1888; aged 56; died in Carthage, N. Y., December 14.

Romeo Picotte, Montreal, Que.; Laval University, Montreal, 1918; aged 26; died in Montreal, in October, from pneumonia following influenza.

Frank Marion Mullins, Fort Worth, Texas; Bellevue Hospital Medical School, 1883; aged 54; died at his home, December 11.

Emily James Davis, Marion, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1892; aged 48; died at her home, December 8.

Oswald W. Cosby ⊕ Monroe, La.; Marion-Sims College of Medicine, St. Louis, 1896; aged 43; died at his home, in October.

Charley I. Hammond, Baltimore; Maryland Medical College, Baltimore, 1905; aged 50; died at his home, November 21.

John Ivison, Coatesville, Pa.; University of Pennsylvania, Philadelphia, 1874; aged 71; died at his home, October 15.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MISBRANDED NOSTRUMS

How the Bureau of Chemistry Is Protecting the Public Against Fraudulent or Misleadingly Advertised "Patent Medicines"

Paine's Celery Compound.—Shipped by Wells & Richardson Co., Burlington, Vt. Analysis showed alcohol, 18.5 per cent., potassium nitrate, sugar and glycerin, with calisaya, celery, blackhaw and sarsaparilla indicated. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5021.*]

Botanic Blood Balm.—Shipped by Wm. R. Warner & Co., Philadelphia. Analysis showed alcohol, 14.6 per cent., potassium iodid, arsenic trioxid, and guaiac, with sarsaparilla and senna indicated. Falsely and fraudulently advertised. Fine, $200.—[*Notice of Judgment No. 5022.*]

Owens' Wonderful Sore Wash.—Shipped by Wedard W. Zurhellen, manager of the Sore Wash and Eye Lotion Co., Natchez, Miss. Analysis showed hydrastin, zinc salt, sulphate, chlorid and sodium present. Falsely and fraudulently advertised. Fine, $10 and costs.—[*Notice of Judgment No. 5023.*]

Lafayette Cough Syrup.—Shipped by Lafayette Co., Berlin, N. H. Analysis showed 75 per cent. sugars, 7.34 per cent. alcohol, ipecac alkaloids, wild cherry, and a trace of benzoic acid. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5024.*]

Gilbert's Gravel Root Compound.—Shipped by Thomas H. Gilbert Drug Co., Huntsville, Ala. Analysis showed over 14 per cent. alcohol with lithium, benzoic acid, and emodin, and indications of cascara, licorice and juniper. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5025.*]

Strange's Rheumatic Remedy.—Shipped by Howell M. Strange, Birmingham, Ala. Analysis showed the product to be, essentially, a mixture of baking soda and magnesium carbonate. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5028.*]

Baur's Diamond Brand Bromides.—Shipped by the Liquid Carbonic Co., Minneapolis. Analysis showed the preparation to be a granular effervescent salt, containing chiefly baking soda, citric acid, Epsom salt, a small amount of caffein and but a trace of bromid. Falsely and misleadingly advertised. Fine, $10.—[*Notice of Judgment No. 5035.*]

S. B. Cough & Consumption Remedy.—Shipped by the Blumauer-Frank Drug Co., Portland, Ore. Analysis showed alcohol, morphin sulphate, chloroform, tar and sugar. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5063.*]

Gowan's Preparation.—Shipped by the Gowan Medical Co., Chicago. Analysis showed that the product consisted, essentially, of a wool-fat vehicle containing about 12 per cent. camphor, 0.7 per cent. quinin sulphate and about 20 per cent. of water. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5084.*]

Urol.—Shipped by Joseph C. Ligeour and Chesleigh A. Holtzendorf, who traded as the Standard Chemical Co., Fitzgerald, Ga. Analysis showed that Urol was a solution of volatile oils in balsam. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5085.*]

Boxenbaum Discovery.—Shipped by Beni Boxenbaum, who traded as Boxenbaum, Son & Co., Philadelphia. Analysis showed the stuff to be, essentially, a watery solution of potassium bromid, with a small amount of a cathartic drug. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5089.*]

Tablets Creavita.—Shipped by Inter-American Pharmacal Corp., New York City. Analysis showed the tablets to contain, essentially, chromium sulphate, calcium carbonate, phenolphthalein, strychnin and starch. Falsely and fraudulently advertised. Company pleaded guilty; sentence suspended.—[*Notice of Judgment No. 5120.*]

Old Lady Fulten's Comforting Pills.—Shipped by Sharp & Dohme, New York City. Analyses showed the pills were composed, essentially, of reduced iron, strychnin, and a laxative drug. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5122.*]

C. C. C. (Crownall Elastic Capsules).—Shipped by Hance Bros. & White, Philadelphia. Analysis showed these to be gelatin capsules containing, essentially, oil of cubeb and balsam of copaiba. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5123.*]

Victor Injection, No. 19 Compound, No. 6 Compound.—Shipped by the Victor Medicine Co., St. Louis. Analyses showed "Victor Injection" to be an aqueous solution of ichthyol; "No. 19 Compound" and "No. 6 Compound" to be essentially milk sugar. All three products falsely and fraudulently advertised. Fine, $600.—[*Notice of Judgment No. 5124.*]

Hemogenas Pills.—Shipped by Sharp & Dohme, New York City. Analysis showed the pills to be compounded, essentially, of reduced iron, a small amount of unidentified alkaloid, a laxative drug, and phosphorus compounds. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5125.*]

Restorative Tablets—Fountain of Health.—Shipped by Sharp & Dohme, New York City. Analysis showed the tablets to contain, essentially, reduced iron, quinin, strychnin, and a laxative drug. Falsely and fradulently advertised. Fine, $10.—[*Notice of Judgment No. 5126.*]

Denn's Strong, Sure, Safe and Speedy Stomach, Liver, Kidney, and Rheumatism Remedy.—Shipped by Henry Denn, trading as Denn's Rheumatic Cure Co. Analysis showed alcohol, 8.2 per cent., over 50 per cent. of sugar, traces of glycerin, and indications of licorice and cascara sagrada. Falsely and fraudulently advertised. Fine, $50 and costs.—[*Notice of Judgment No. 5130.*]

Dr. Navaun's Mexican Lung Balm, and Kidney Tablets.—Shipped by Edward S. and Clifford S. Navaun, trading as the Botanic Drug Co., Detroit. Analyses showed the "Lung Balsam" to be, essentially, a syrup containing vegetable extractives and small quantities of chloroform and alcohol, and the "Kidney Tablets" to contain methylene blue, potassium nitrate, juniper, and calcium carbonate. Both were falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5131.*]

Dr. Chas. De Grath's Electric Oil.—Shipped by Margaret Hutton Kemp, Samuel H. Ordway and Edward C. Mears Kemp, executors of the estate of George William Kemp, trading as Lanman & Kemp, New York City. Analysis showed the product to consist, essentially, of fixed saponifiable oil, turpentine, oil of cinnamon, ammonium compounds and chloroform, with indications of the presence of a small amount of mineral oil. Falsely and fradulently advertised. Fine, $20.—[*Notice of Judgment No. 5136.*]

Bovinine.—Shipped by the Bovinine Co., New York City. Analysis showed the product to be a blood preparation containing 11 per cent. alcohol, and over 6 per cent. glycerin. Falsely and fraudulently advertised. Company pleaded guilty; sentence suspended.—[*Notice of Judgment No. 5170.*]

Fritch's Vegetable Liniment.—Shipped by John A. Fritch, St. Louis. Analysis showed it to be essentially an alcoholic solution of chloroform, turpentine, camphor, capsicum, oil of cloves, methyl salicylate, and free ammonia. Falsely and fraudulently advertised. Fine, $20 and costs.—[*Notice of Judgment No. 5171.*]

Perkins' National Herbs Blood Purifier Kidney and Liver Regulator.—Sold by National Herb Co., Washington, D. C. Analysis showed it to contain practically 40 per cent. sugar, 11 per cent. carbonate of lime, with a cathartic drug and strychnin present. Falsely and fraudulently advertised. Fine, $75.—[*Notice of Judgment No. 5175.*]

Dr. Lemke's Golden Electric Liniment, and St. Johannis Drops.—Shipped by C. H., E. S., C. R., and W. H. Lemke, A. Cromer, and C. Cross, who traded as Dr. H. C. Lemke Medicine Co., Chicago. Analysis showed the "Golden Electric Liniment" to contain over 62 per cent. alcohol, with chloroform, free ammonia, camphor, and red pepper present, and oil of sassafras and volatile oil of mustard probably present. Analysis showed the "St. Johannis Drops" to contain 43 per cent. alcohol, with morphin, camphor, a laxative drug, red pepper and aromatic oils present. Both products falsely and fraudulently advertised. Fine, $5 and costs.—[*Notice of Judgment No. 5176.*]

Mentholatum.—Shipped by Edward K. Hyde, trading as the Mentholatum Co., Buffalo. Analysis showed the product to be essentially petrolatum, with about 5 per cent. boric acid and 10 per cent. menthol and camphor. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5178.*]

Enteronol.—Shipped by the Enteronol Co., Oswego, N. Y. Analysis showed the preparation to consist essentially of alum, camphor, ginger, red pepper, tannic acid and phenolphthalein. Falsely and fraudulently advertised.[1] Fine, $200.—[*Notice of Judgment No. 5179.*]

Dr. Harter's Lung Balm.—Sold by the Dr. Harter Medicine Co., Philadelphia. Analysis showed the preparation to contain over 60 per cent. sugar, 3.65 per cent. alcohol, chloroform, cinnamic acid and plant extractive material, with indications of traces of antimony and tartrates. Falsely and fraudulently advertised. Fine, $200.—[*Notice of Judgment No. 5188.*]

Dr. O. Phelps Brown's Herbal Ointment.—Shipped by the Kells Co., New York City. Analysis showed the preparation to be essentially 98.5 per cent. petrolatum, and 1.5 per cent. salicylic acid. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5212.*]

Taylor's Horehound Balsam.—Shipped by W. Scott Taylor, trading as the Taylor Drug and Chemical Co., Trenton, N. J. Analysis showed the preparation to contain 14.5 per cent. alcohol, 46.7 per cent. sugar, with chloroform, methyl salicylate, horehound, camphor, and a trace of ipecac. Falsely and fraudulently advertised. Taylor pleaded guilty; sentence suspended.—[*Notice of Judgment No. 5214.*]

Breeden's Rheumatic Cure.—Shipped by Carroll C. Breeden, trading as the Breeden Medicine Co., Memphis, Tenn. Analysis showed the product to contain 12.6 per cent. alcohol, with potassium iodid, guaiac and probably extract of colchicum seed and colocynth. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5224.*]

Sulphur Bitters.—Shipped by Allen P. Ordway, trading as A. P. Ordway & Co., New York City. Analysis showed the product to have over 21 per cent. alcohol, with sulphur, aloes and another laxative drug present, and with indications of wild cherry. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5234.*]

Dr. DeWitt's Eclectic Cure; Dr. DeWitt's liver, Blood and Kidney Remedy.—Shipped by W. J. Parker, trading as W. J. Parker Co., Baltimore. Analysis showed the "Eclectic Cure" to consist essentially of alcohol, water, ether, oil of sassafras, red pepper, and opium alkaloids, with lobelia indicated. The "Liver, Blood and Kidney Remedy" was shown by analysis to consist essentially of an alcohol-water extract of buchu and rhubarb, with iodids, nitrates, chlorids, and sulphates of magnesium, calcium, sodium and potassium. Falsely and fraudulently advertised. Fine, $20 and costs.—[*Notice of Judgment No. 5240.*]

Payne's Sylax.—Shipped by Edward C. Seyler, trading as the German Medicine Co., Cincinnati. Analysis showed the preparation to consist essentially of a laxative drug, plant extractive matter, Epsom salt, sugar, alcohol and water, with a white powder at the bottom of the bottle, consisting principally of sulphate of lime. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5269.*]

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[1] This nostrum was examined by the chemists of the A. M. A. Chemical Laboratory ten years ago, and the fraudulence of the product was declared in The Journal, March 21, 1908.

Dr. Bell's Pine Tar Honey.—Sold by E. E. Sutherland Medicine Co., Philadelphia. Analysis showed it to be an alcohol-water solution, containing ammonia, glycerin, pine tar, sassafras, red pepper, reducing sugars, a laxative drug and alkaloids. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5271.*]

Lung Germine.—Shipped by the Lung Germine Co., Jackson, Mich. Analysis showed the preparation to be a water-alcohol solution, containing free sulphuric acid and iron sulphate. Falsely and fraudulently advertised.[1] Fine, $50.—[*Notice of Judgment No. 5280.*]

Correspondence

EFFECT OF INFLUENZA ON THE HEART

To the Editor:—Many physicians, no doubt, have frequently seen cases of influenza in which, usually after the fever has subsided, the pulse is slow and easily compressed, and the patient complains of dizziness, extreme weakness and depression, and on attempting to get up often falls into a faint.

Examination usually reveals a slow heart with sounds somewhat muffled, giving the impression to the ear of a tired out heart. This condition is usually taken to be one of myocarditis, and frequently it has been stated that in the future we shall have a great many cases of myocarditis and other heart conditions to contend with.

In taking the blood pressure, invariably I have found the diastolic pressure perfectly normal. The systolic is usually very low, so that the pulse pressure is anywhere from 15 to 20. This condition I have seen about once in every twenty or twenty-five cases of influenza under my care, and it has appeared in cases showing the very mildest or slightest degree of infection, as well as in the severer types. The fact that it appears in the mildest type of infection, in which the fever is very low and lasts only three or four days, as well as in the severer types, would lead me to believe that it is not due to an infection of the heart muscle itself, but rather to some disturbance in the factors that control the blood pressure.

It has been pointed out that severe infections, including influenza, frequently produce a disturbance of the suprarenal gland. For this reason I have used in all these cases the suprarenal gland or its extract, giving usually 10 drops of the 1:1,000 solution under the tongue every three hours. Within twenty-four hours there is usually a very decided change in the clinical condition of the patient. The dizziness and extreme depression are gone and the pulse rate increases from 10 to 15 beats per minute, the pulse pressure also increases, and within a few days the patient is comparatively well.

I do not mean to imply that myocardial or endocardial lesions do not occur, as they undoubtedly do in any such severe infection as influenza. However, I do feel that the majority of the heart manifestations we encounter are of the type described above.

S. R. Salzman, M.D., Toledo, Ohio.

HELPING PHYSICIANS WHO HAVE HELPED THE GOVERNMENT

To the Editor:—There have been a large number of physicians who have profited professionally by the work they have been assigned while in the government service, by virtue of having been given base hospital assignments, intensive instruction courses, etc. On the other hand there have been a very large number who have been assigned administrative work, field work, etc., which has caused their real professional value to a community to deteriorate while in the service. Since as the government has arrangements for giving intensive instruction at certain clinics, I believe it would be only fair for them to make this instruction available for those who have had no such opportunities during their active war service.

I understand that the provision for an extra month's pay from date of discharge will not apply to members of the Reserve Corps unless they are discharged on account of physical disability; also there has been no opportunity for them to take advantage of the month's vacation out of each year which accumulates for those holding permanent commissions. If these statements are correct, they are additional arguments in favor of the foregoing plan.

Please do not publish my name or address.

M. M. C.

QUALIFIED PHYSICIANS DESIRED IN FLORIDA

To the Editor:—There has been considerable criticism from time to time by men from other states because the medical laws of Florida do not permit of reciprocity in medical licensure. In justice to the people and the medical fraternity of Florida I wish to state that we would have no objection to reciprocity of medical licensure between other states and Florida if it could be restricted to high grade men who are graduates of our best medical schools. An examination of the records shows, however, that literally thousands of requests for reciprocity have been received by the secretary of the Regular Board of Medical Examiners of Florida, and that a very large percentage of these are from men who are graduates of low grade schools. Many letters show extreme illiteracy, stamping the writers as uneducated men. Some letters have been threatening.

Florida offers as good a field for qualified medical men as any state in the Union today. In fact, we urge and welcome high grade men to locate in Florida. The officers of the state medical society will gladly cooperate in placing men in suitable locations. The examinations are exceedingly fair and our medical associations growing stronger, with medical fellowship better than ever before. We urge and welcome men from high grade schools to come and locate in "the Land of Flowers."

Fred J. Walter, M.D., Daytona, Fla.
President, Florida Medical Association.

"THE 'ACRID PRINCIPLE' OF CERTAIN PLANTS"

To the Editor:—I note in The Journal, Dec. 7, 1918, p. 1917, an editorial comment on "The 'Acrid Principle' of Certain Plants." You cite the work of Brown and Anderson at the Pharmacological Laboratory of the University of Minnesota respecting the cause of acridity in certain plants. I called attention to the facts cited in the editorial in an article published in *Science,* 1903, **18,** 115. My attention was called to the matter by Mr. W. E. Safford, botanist in the Bureau of Plant Industry. He said that he had heard it stated that the acridity of certain plants mentioned, such as the *Colocasia* and *Arisaema triphyllum,* was due to this cause, and requested that I have an examination made of them. As described in the article mentioned, I turned the matter over to Mr. B. J. Howard, microscopist of the Bureau of Chemistry. Soon after beginning the examination he came to me in quite an excited manner and asked me to witness a most peculiar phenomenon. In the field of the microscope I saw some oblong objects, not unlike extremely attenuated balloons of the Zeppelin type. In a short time I saw a sharp arrow discharged from one of these bundles, producing a slight recoil in the balloon. Soon thereafter a number of arrows were discharged simultaneously, the arrows going quite a distance in the field of the microscope and producing a corresponding recoil. It was, indeed, a true bombardment. The bundles of crystals (raphides) served as guns, and the slender sharp arrows of calcium oxalate were the missiles. It was truly a most remarkable display. It is easy to see how these extraordinarily sharp points discharged against the mucous surface produce the intense pain and irritation which the chewing of plants of this kind causes. Mr. Safford told me that among the Polynesians, with whom he had lived for a considerable length of time, these calcium oxalate bearing plants are some of the principal foods. They have to be well cooked before they are eaten. The cooking probably dissolves the crystals, and the plants are then eaten without injury or irritation. The *Colocasia* is the food product generally employed. If the Indian turnip, *Arisaema triphyllum*, is pulverized and the juice expressed and placed in the mouth, no sensation of acridity is experienced. This indicates either that the crystals of calcium oxalate are not expressed with the juice, or else that they do no harm unless shot out of the little cannon. The article in *Science* ends with this paragraph:

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[1] "Lung Germine," a fraudulent consumption cure was exposed by the Propaganda department of The Journal some years ago. The matter appears in the pamphlet, "Consumption Cures," published by the American Medical Association, price 20 cents.

> While not fully established, there is presumptive evidence that the pricking and burning sensation experienced in masticating materials of this kind is mostly of a mechanical origin.

H. W. Wiley, M.D., Washington, D. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will *not* be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DEATHS FROM INFECTIOUS DISEASES

To the Editor:—Please give the numbers of deaths during the last five years in the United States from phthisis, pneumonia, scarlet fever, measles, whooping cough and diphtheria.

J. M. Mitchell, M.D., Pontiac, Ill.

Answer.—Figures are available only for the registration area of the United States, which, in 1916—the year for which the latest statistics are published—comprised twenty-six states and represented 71,621,632 people, or 70.2 per cent. of the total population of the United States. The figures in the following tabulation are from mortality statistics published by the Bureau of the Census of the U. S. Department of Commerce:

DEATHS IN REGISTRATION AREA OF UNITED STATES, 1911-1916 *

	1916	1915	1914	1913	1912
Tuberculosis:					
All forms	101 396	98,194	96,903	93,421	90 360
	(141.6)	(145.8)	(146.8)	(147.6)	(149.5)
Lungs	88 666	85,993	81,366	80 812	78,465
	(123.8)	(127.7)	(127.8)	(127.7)	(129.9)
Meningitis	5 706	5 445	5,410	5,467	5,098
	(8.0)	(8.1)	(8.2)	(8.6)	(8.4)
Other forms	7,024	6,756	7,127	7,142	6,797
	(9.8)	(10.0)	(10.8)	(11.3)	(11.2)
Pneumonia:					
All forms	98 334	89,326	83,804	83,778	79,917
	(137.3)	(132.7)	(127.0)	(132.4)	(132 3)
Bronchopneumonia	33,105	33,501	32,153	31,094	28 422
Lobar	51,699	44,153	33,911	32,615	30 003
"Pneumonia"	8 330	11,672	14,740	20,059	21,492
Scarlet fever	2,355	2,419	4,310	5,498	4,038
	(3.3)	(3.6)	(6.6)	(8.7)	(6.7)
Measles	7,917	3,649	4,461	8,108	4,240
	(11.1)	(5.4)	(6.8)	(12.8)	(7.0)
Whooping cough	7,254	5,421	6,816	6,332	5,619
	(10.2)	(8.1)	(10.3)	(10.0)	(9.3)
Diphtheria and croup	10,367	10,544	11,786	11,920	11,013
	(14.5)	(15.7)	(17.9)	(18.8)	(18.2)
All causes	1 001 921	909,155	898,059	890 848	838,251
	(1,398.9)	(1,350.2)	(1,360.9)	(1,407.4)	(1,387.2)

* Figures in parentheses = rate per 100,000 population (from "Mortality Statistics," Bureau of the Census, *Department of* Commerce Washington D. C.).

Communal Infections.—During last year Dr. D. C. Kirkhope, M.O.H., found it necessary to draw the attention of the Tottenham education committee to the increased prevalence of, what he designated, "communal" diseases since the outbreak of the war, and he ventures the opinion that they were largely due to soldiers returning from camps and from the front. He continued: Ringworm of scalp and body, impetigo, verminous conditions, scabies and such like unpleasantly preponderate among our minor ailment clinic cases, and it becomes increasingly important that teachers, attendance officers and nurses responsible for the scrutiny of children in schools, and the attendance of children at school, refer all children concerning whom they have the slightest doubt to the clinic for an expert opinion.—*The Medical Officer.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: *Montgomery, Jan. 14.* Chairman, Dr. S. W. Welch, Montgomery.

Arizona: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 14-16. Sec., Dr. *Edgar P. Copeland, The Rockingham,* Washington.

Hawaii: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

Kansas: *Topeka, Feb. 11.* Sec., *Dr. H. A.* Dykes, Lebanon.

Minnesota: Minneapolis, *Jan. 7-10.* Sec., *Dr.* Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, Jan. 28-30. Sec., *Dr. G. H. Jones,* State *House, Jefferson* City.

New Mexico: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: Jan. *28-31.* Albany, Buffalo, New York City and Syracuse. *Mr. Herbert J. Hamilton, Asst. Prof.* Exams., New York Dept. of Education, Albany.

North Dakota: Jan. *7.* Sec., Dr. G. M. *Williamson,* 860 Belmont Ave., Grand Forks.

Oklahoma: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.

Pennsylvania: Philadelphia, Jan. *7-9.* Sec., *Mr.* Nathan C. Schaeffer, State Capitol, Harrisburg.

South Dakota: Pierre, Jan. 14. *Sec., Dr. P.* B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Vermont: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.

Washington: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

Wisconsin: *Madison,* Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

MEDICAL SCHOOLS OF MEXICO AND CENTRAL AND SOUTH AMERICA

From the following medical schools of Central and South America replies to questionnaires have been received by the Council on Medical Education which furnish a fair idea of the character of these institutions. *Statements in regard to* them are as follows:

Argentina

Faculty of Medical Sciences of Cordoba, *Cordoba,* Argentina.—Organized in 1878. Completion of the six-year course of the secondary school admits to the medical course. The latter covers seven years; physics, chemistry and biology being given in the first two years. The faculty consists of 40 professors, 10 of whom are said to devote considerable time to scientific research work. There are also 34 instructors, or a total of 74 teachers. The institution has access to 350 beds in a hospital adjoining the college building, in connection with which also there is an outpatient department. Attendance is required at 30 necropsies, and the seniors are said, on the average, to attend about 20 maternity cases. There is a medical library having over 5,000 volumes, and from 60 to 70 medical periodicals are regularly received. There is a nucleus for a medical museum, but this has not been developed. The students enrolled are: first year, 90; second year, 81; third year, 75; fourth year, 63, and fifth years, 49, a total of 358.

Faculty of Medical Sciences of the University of Buenos Aires, Buenos Aires, Argentina.—Year of organization not given. Graduation from the six-year course in the secondary school admits to the medical course, which covers seven years. Premedical sciences are given in the first two years of the medical course. The faculty consists of 68 teachers, devoting on the average 3 hours per week to teaching besides the practical work. The usual laboratory courses of instruction are given. The college has access to 420 hospital beds and also to a dispensary said to have 15 consultation rooms and an average of about 500 patients daily. Students are required to witness postmortems in the hospital, there being altogether about 200 necropsies each year. Each student, also, must have attended at least 4 maternity cases. The college has a library of 48,000 volumes, including a full supply of medical periodicals. There is a medical museum containing nearly 6,000 anatomic and pathologic specimens. The students enrolled are: first year, 717; second year, 681; third year, 573; fourth year, 431; fifth year, 277; sixth year, 204; seventh year, 168, a total of 3,051. From the standpoint of student enrolment this is the largest medical school in the Western Hemisphere, as far as reports have been received.

Bolivia

FACULTY OF MEDICAL SCIENCES, LaPaz, Bolivia.—Founded in 1830 but not completed until 1835. Its first dean was Dr. Pasamanos. Completion of the secondary school course admits to a seven-year course in medicine. The premedical sciences, physics, chemistry and biology, are given in the first two years of the medical course. There are 19 professors who give, on the average, about 12 hours per week to research work. The medical school has access to 365 hospital beds. There is in connection with the hospital an emergency department, a municipal consultation office and an office of vaccination caring for about 55 patients per day on the average. Attendance on postmortems is required of medical students, as is true also of maternity cases, although figures are not given. The library consists of 399 volumes, but no medical periodicals are received. There is no medical museum. The students enrolled are: first year, 23; second year, 8; third year, 9; fourth year, 8; fifth year, 14; sixth year, 5; seventh year, 2, a total of 69. The institution also gives courses in pharmacy, chemistry and midwifery.

Brazil

FACULTY OF MEDICINE OF PORTO ALEGRE, Porto Alegre, Brazil.—Organized and equipped by the government of Brazil in 1898. Eleven years of elementary and secondary education precede admission to the medical school, the latter having a six-year course. Premedical sciences, physics, chemistry and biology, are given in the first year of the medical course. The school has 34 professors giving, on the average, one hour per day to scientific research work. The institution has laboratories in physics, chemistry, anatomy, legal medicine, physiology, histology, hygiene, pharmacology and microbiology. The school has access to about 200 hospital beds and to a dispensary having about 30 patients per day on the average. There are very few postmortems. No fixed number of maternity cases is required of the students. The library has about 3,200 volumes, but only 5 medical periodicals. There is a medical museum having altogether 163 prepared specimens. Students enrolled in 1917 were: first year, 29; second year, 50; third year, 29; fourth year, 15; fifth year, 27; sixth year, 29, a total of 179.

Colombia

UNIVERSITY OF CARTAGENA MEDICAL FACULTY, Cartagena, Colombia.—Founded in 1828. Completion of the six-year secondary school course giving the degree of Bachelor of Technic is required for admission to the six-year medical course. The premedical sciences, physics, chemistry, and biology are given in the first two years. The school has 19 professors who give 3 hours daily to scientific research work. The school has access to only 30 hospital beds and has a small dispensary of only 10 patients per day on the average. The students are said to assist at from 2 to 4 necropsies a year. No definite number of maternity cases is required. The library is said to consist of only 40 volumes and 4 medical periodicals. There is a small museum of natural history, but it contains no anatomic and pathologic specimens. The students enrolled in the medical school in 1917 are: first year, 9; second year, 3; third year, 5; fourth year, 7; fifth year, 5; sixth year, 10, a total of 39.

Mexico

SCHOOL OF MEDICINE OF DE NUEVO LEON, Monterey, Mexico.—Founded in 1859. Completion of the work in a superior secondary school admits to the five year medical course. The courses in physics, chemistry and biology are required to have been completed before admission to the medical course. There are 18 professors, each said to devote about two and a half hours per day, on the average, to teaching. The school has access to 127 hospital beds and to a dispensary having an average of about 14 patients per day. Attendance at necropsies is obligatory. Each student must have attended, as a minimum, 10 maternity cases. The medical library contains only about 350 volumes, and there are only 2 medical periodicals. There is a small medical museum containing about 35 anatomic, 11 pathologic and 45 other specimens. In 1917 the students enrolled were: first year, 9; second year, 4; third year, 3; fourth year, 4; fifth year, 2, a total of 22.

SCHOOL OF MEDICINE AND PHARMACY OF YUCATAN, Yucatan, Mexico.—Organized in 1833. Completion of the 12 grades of preliminary instruction, including work in the secondary (superior) school, is required for admission to the six-year medical course. Physics, chemistry and biology are required to have been completed in the superior school before admission to the medical course. The school has 25 full-time teachers giving, on the average, two hours daily to scientific research work. Laboratory courses are given in clinical chemistry, histology, anatomy, pathology, bacteriology, parasitology and therapeutics. The school has access to 600 hospital beds, but there is no outpatient department. It is said that there are about 300 necropsies per year, and attendance by the students is required. Students are required to attend at least 5 maternity cases. The library is said to consist of 3,000 volumes and 4 medical periodicals. A museum contains 1,727 anatomic and pathologic specimens. The students enrolled in 1917 are: first year, 17; second year, 16; third year, 18; fourth year, 9; fifth year, 6; sixth year, 4, a total of 70.

SCHOOL OF MEDICINE OF THE STATE OF MICHOACAN DE OCAMPO, Morelia, Mexico.—Organized in 1828. Graduation from the secondary school admits to the five-year medical course. Physics and chemistry are required to have been completed in the first year of the medical course and biology in the second year. There are 12 professors who devote on the average 2 hours per day to scientific research work. Laboratory courses are given in physics, chemistry, biology, mineralogy, geology, anatomy, physiology, microbiology, histology, pharmacy and history of obstetric drugs. The medical school has access to 400 hospital beds and has a dispensary of 80 patients per day on the average. There are about 150 necropsies each year and about 350 maternity cases. The library consists of 2,000 volumes and 8 medical periodicals regularly received. A small museum containing 113 anatomic and pathologic specimens has been established. The numbers of students enrolled in 1917 are: first year, 10; second year, 8; third year, 8; fourth year, 12; fifth year, 7, a total of 45.

SCHOOL OF MEDICINE AND PHARMACY OF GUADALAJARA, Guadalajara, Mexico.—The University of Guadalajara, including its faculties of law, medicine and theology, was established in 1792 by royal order of the King of Spain and the Indies. The preliminary education consists of six years of elementary and five years of secondary education, which admits to the medical school. In 1916 the medical course was extended from five to six years. Physics, chemistry and natural sciences are required to have been studied in the secondary school, which has two large laboratories. The first year of medicine includes courses in medical physics and biologic chemistry. There are 32 professors who devote from 3 to 6 hours per week to teaching. Laboratory courses are given in physiology, bacteriology, normal and pathologic histology, organic chemistry, inorganic chemistry and general chemical analysis, electrotherapeutics and clinical diagnosis. Attached to the school of medicine is the Civil Hospital having 800 beds, of which 300 are devoted to teaching purposes. Connected with the hospital is a dispensary or polyclinic caring for about 50 patients per day on the average. Students are compelled to attend postmortems two or three times per week and there is an ample supply of material. Each student is required to attend at least 10 maternity cases during his sixth medical year. The library contains 1,000 volumes, with a large list of foreign medical periodicals. On account of the unsettled conditions in Mexico, the school has been able to receive regularly only about 15 or 20 of these periodicals. A medical museum is being developed, and about 40 or 50 anatomic specimens were collected during the last year. Students enrolled in 1917 are: first year, 37; second year, 35; third year, 31; fourth year, 21; fifth year, 21; sixth year, 5, a total of 150. The departments of pharmacy and midwifery have enrolled, respectively, 12 and 8 students.

NATIONAL SCHOOL OF MEDICINE OF MEXICO, Mexico City, Mexico.—Organized in 1833. Eleven years of preliminary education are required, including 5 years in the superior school, which corresponds with the high school course in the

United States. The medical course covers six years, which includes the courses in physics, chemistry and biology. The college has 50 professors. Laboratory courses are given in histology, pharmacy, pathologic anatomy, biologic chemistry, microbiology and physiology. The number of hospital beds available is not given. It is stated that no record is kept of the outpatients in the dispensary. Students taking the course in pathologic anatomy are required to attend two postmortems during the year. There is no fixed number of maternity cases. The library contains over 10,000 volumes with a large supply of medical periodicals, which have not been regularly received recently owing to war conditions. There is a medical museum containing nearly 2,000 anatomic and pathologic specimens. The students enrolled during the year of 1917 are: first year, 215; second year, 140; third year, 45; fourth year, 62; fifth year, 39; sixth year, 35, a total of 536.

San Salvador

Medical School of San Salvador, San Salvador, Central America.—Organized in 1903. A certificate of preparatory professional education is required for admission to the six-year medical course. Physics, chemistry and biology are included as a part of the medical course. The school has 20 professors devoting from three to six hours per week to scientific research. Laboratory courses are given in histology, parasitology, bacteriology, biologic chemistry and toxicology. There are 120 hospital beds devoted to teaching purposes and a dispensary having about 40 patients per day on the average. Attendance at postmortems is not required, and no minimum number of maternity cases has been fixed. The library consists of approximately 1,500 volumes and only 3 medical periodicals. There is no medical museum. The numbers of students enrolled are: first year, 22; second year, 10; third year, 6; fourth year, 9; fifth year, 9, a total of 56 students in 1917.

Book Notices

The Doctor in War. By Woods Hutchinson, M.D. Cloth. Price, $2.50. Pp. 481, with illustrations. Boston: Houghton, Mifflin Company, 1918.

The author is well known as a writer for the public on medical topics, and most of the chapters in this book have previously appeared in magazines and syndicated newspaper articles. In his capacity as a journalist, Dr. Hutchinson visited the medical departments of the various forces in the great war, spending practically a year during 1917 in interviewing leaders and making observations. His book will give the reader a good picture of medical conditions with the fighting forces. The author seems to be hyperenthusiastic as to medical accomplishments during the war, and seems especially prone to accept too readily first estimates on new procedures or methods. There have already been many books on the medical aspects of the war written for lay readers. As a piece of descriptive work, the book by Dr. Hutchinson ranks with the best. As a basis for judgment of scientific accomplishments, it cannot be given equal rank.

Benjamin Rush and His Services to American Education. By Harry G. Good, Ph.D., Professor of Education, Bluffton College. Cloth. Price, $1.60. Pp. 283. Bluffton, Ohio: American Educator Company, 1918.

Benjamin Rush was a many-sided physician; there have been many books concerning his life and work in addition to numerous papers and a voluminous correspondence which he himself prepared and which have been well preserved in various places. The book by Professor Good is concerned primarily with the work of Dr. Rush in education and social reform. The first few chapters discuss his early life and his work as a statesman and as a physician. The fourth and fifth chapters concern "Benjamin Rush and Dickinson College" and "The Educational Writings of Dr. Rush." An appendix contains a rather comprehensive bibliography. Professor Good has not overstated the accomplishments of Dr. Rush. The plain recital of facts indicates that a statement commonly made today concerning busy men applied very aptly to Benjamin Rush: The busiest men are those who seem to have the most time for doing things.

Medicolegal

Restrictions on the Physical Examination of Plaintiffs

(*Perkins v. Monongahela Valley Traction Co. (W. Va.), 95 S. E. R. 797*)

The Supreme Court of Appeals of West Virginia says that the right to have a physical examination of a plaintiff in an action to recover damages for personal injury, if such right exists, and on this the court expresses no opinion, can certainly only be reasonably exercised. The authorities on the question of the existence of the right are irreconcilably in conflict. An examination of the authorities leads to the conclusion that even in those jurisdictions in which the right to have such physical examination is recognized, it is granted or withheld by the court in the exercise of a sound judicial discretion. The things to be considered by the court in passing on a motion for a physical examination are the convenience of the plaintiff, the necessity for the physical examination, that is, the probability that it will produce evidence of value in the trial of the case, and also whether or not the plaintiff has declined to submit to such reasonable examination. In no case have the courts required the submission to a physical examination that would result in serious inconvenience to the plaintiff, or would involve a surgical operation, and ordinarily the plaintiff in such case is allowed the privilege of having such examination conducted at such time and place as he desires, in case he makes a reasonable selection thereof. The purpose of such physical examination in those jurisdictions in which it is allowed is not to secure evidence to defeat the plaintiff's case, but to expose the true situation; and should such examination result in opinions on the part of the examining physicians adverse to the defendant, he should not be allowed to have another examination with the hope of securing opinions from other experts favorable to him. When the plaintiff permits voluntarily such examination, the defendant should then select the experts he desires to make it, and should not be allowed to embarrass or inconvenience the plaintiff by unnecessary repetitions of such request. It is true that ordinarily such examinations are made in private; but this is because of the embarrassment that it might cause the plaintiff to submit to a public exposure of his person. If he prefers to have the examination made in the presence of the jury, the defendant cannot object, and certainly the testimony of the experts would be very much more enlightening under such circumstances than it would be when the object being examined was not physically presented to the jury along with the expert testimony. With reference to this particular case, the court holds that it is not an abuse of discretion to refuse to require the plaintiff in a suit to recover damages for personal injuries to submit to a physical examination, to be conducted by physicians selected by the defendant, when it appears that the plaintiff has submitted to one such examination, and on demand being made for a second one, expressed his willingness to submit thereto at the trial, if indeed the court has the power to require such examination in any case.

Bases for Convictions of Illegally Practicing Medicine

(*State v. Wild (Mo.), 202 S. W. R. 613. State v. Evertz (Mo.), 202 S. W. R. 614. State v. Evertz (Mo.), 202 S. W. R. 616*)

The St. Louis Court of Appeals, in these three cases, which are "not to be officially published," affirms convictions of the defendants of practicing medicine without a license.

In the first case, the court holds that the information was not fatally defective in failing to allege that the defendant was not a commissioned surgeon of the United States Army, Navy, Public Health, or Marine Hospital Service; neither in failing to allege that the defendant was not authorized to practice in Missouri under a "permit" of the state board of health, nor in failing to allege that the defendant had no license issued to him by virtue of the laws of another state or territory. It was argued that the information was fatally defective in that it did not allege that the defendant did treat or attempt to treat the sick; but, while it did not charge the offense in the language of the statute, it was sufficient in charging that the defendant "did treat and attempt to treat one G. E. Wetzel for a disease known as rheumatism," thereby substantially charging that the defendant treated or attempted to treat "the sick or others afflicted with bodily or mental infirmities," in violation of the statute. The evidence disclosed that Wetzel was an employee of the health department of the city, presented himself at the defendant's office stating that he came because he had rheumatism and asking the defendant whether he could cure it; that the defendant said he could cure him "in different ways, . . . by way of massage, by electricity or water"; that the defendant undertook to treat him by rubbing him, and by the use of an electric battery, and by the application of water, for which the defendant charged and was paid $2. Wetzel testified that he had in fact no rheumatism; that he was perfectly well at the time, so far as he knew; and that he thus called on the defendant and submitted himself to the defendant for the purpose of making a case against him. The court regards it as clear that the conduct of Wetzel was not of such character as to relieve the defendant from the consequences of his acts done in violation of the statute, the evidence showing that the defendant had offices consisting of certain rooms, with appliances for treating patients, and that the prosecuting witness merely gave him the opportunity to demonstrate that he was treating, or attempting to treat, the sick or those afflicted. Nor was the evidence insufficient to sustain a conviction because the witness admitted that he had no rheumatism at the time in question, for the defendant attempted to treat the sick or afflicted.

In the second case, wherein it was said that it did not appear by the evidence that the state board of health was legally constituted, the court answers that the statute, of which the court takes judicial notice, provides for the creation of the board of health and defines its powers, and there was evidence in the case sufficient to show that under this law a state board of health was acting in the state. The treatment in this case consisted in the defendant's passing his hands over Wetzel's forehead and breathing on the knee in which Wetzel said he had rheumatism, and directing his attention to pictures on the wall, saying: "You get better; you get better; you are getting better," this being what the defendant called "mental suggestion." It was in evidence also that the defendant had advertised himself to give healing to the sick and afflicted by his method of "autosuggestion," as he called it, and held himself out as a doctor of "suggestive therapeutics," signing his name with the initials "S.D.," meaning Doctor of Suggestive Therapeutics.

In the third case it is held that an information following the language of the statute in charging the offense was sufficient. It is also held that the evidence showed a violation of the statute by showing that the defendant maintained an office, with a sign: "Evertz School of Suggestion. Oscar Evertz, S.D., Suggestionist. Treatment. Instruction"; that he circulated advertising matter; offered to treat a case for a certain sum, etc.

Valid Law and Revocation of License

(Lanterman v. Anderson et al. (Calif.), 172 Pac. R. 625)

The District Court of Appeal of California, Second District, affirms a judgment which affirmed the proceedings and determination of the board of medical examiners of the state under and by which the certificate and license authorizing petitioner Lanterman to practice medicine and surgery was revoked on the ground that he had been guilty of unprofessional conduct as defined by the state medical act, namely, the procuring or aiding or abetting or attempting or agreeing or offering to procure a criminal abortion. The court says it was argued that because the statute refers to a "criminal abortion," and that because in order to determine what a criminal abortion is one must look to the penal code, the charge would be insufficiently laid unless the acts defined in the penal code as constituting the crime of abortion were set forth. But the petitioner was not charged with a crime, nor was he subject, on the adverse determination made, to any penalty except the revocation of his license to practice medicine and surgery, and it must be said that the language of the statute is sufficiently explicit to advise a person charged thereunder of the particular kind of unprofessional conduct which it is proposed to prove against him, and that is all that need be said on the question. Nor does the court agree with the contention that the act under which the petitioner was prosecuted is unconstitutional on the ground that powers are conferred which belong strictly under the constitution to the judicial department. Acts of the nature here under consideration have been repeatedly sustained as a proper exercise of the legislative grant. The hearing in the lower court being on a writ of certiorari or review, that court did not err in refusing to take testimony on whether one member of the board had absented himself during the taking of evidence, because the record showed that a quorum of the board was present, and the writ of certiorari may not be used to add to or modify a record with respect to any jurisdictional fact determined therein. It was contended that there was no legal or sufficient evidence authorizing the medical board to make the order complained of. The force of this objection rested chiefly on the assertion that all the material testimony furnished against the petitioner was that given by his accomplices. But, the action not being criminal in its nature, the statutory mandate that a person may not be convicted on the uncorroborated testimony of an accomplice had no application. This court feels satisfied that any witness whose testimony as to competent facts was convincing to the board engaged in the hearing of the charge would be legally sufficient.

Eccentricities and Business Capacity of an Epileptic

(Furlong et al. v. Tilley et al. (Utah), 172 Pac. R. 676)

The Supreme Court of Utah affirms a judgment upholding the validity of a deed to land executed to his sons some four years before his death by a man who was subject to epileptic fits, which occurred generally about once a month, sometimes twice a month in later years, during which fits and for a short time after which it was admitted he was incapable of transacting business. The court says that it believes it is a matter of common knowledge, of which the court will take judicial notice, that when a person is so afflicted to the extent appearing in the record in this case, he is not necessarily disqualified from transacting ordinary business during the intervals between the attacks. This, perhaps more than anything else, accounted for the apparent conflict in the opinions of the various witnesses. Those who happened to see the grantor in one of these attacks or soon after would notice something abnormal in his demeanor or conversation, while those who saw him only in the intervals would notice nothing unusual. It did not appear from the evidence that the eccentricities enumerated, introduced to show the grantor's incompetence, reflected his mental condition at all times. They appeared to be more in the nature of isolated occurrences of mental aberration. As to the incidents themselves, while many of them were exceedingly peculiar, they were not by any means conclusive. His going to town in a buggy and returning without it, unexplained, certainly indicated absence of mind. His trying to put on baby shoes, perhaps in the presence of his little grandchildren, might be only for their amusement, or it might indicate mental aberration at the time. His sitting on the curb and putting his feet in the ditch to cool them off was not unnatural or abnormal; it might not have been according to ethics under the circumstances. His wandering around at times through the town might or might not indicate abnormality. His saying to a Democrat in argument that "God would take care of the Republican party" may have suggested to the Democrat the rankest kind of imbecility; but this court as a whole cannot accede to that view. His failure on some occasions to remember names or persons with whom he was familiar is, perhaps, a common failing of many persons as they advance in years. This court cannot say that such evidence is even persuasive that such persons are incompetent to transact ordinary business. On the other hand, all the evidence in the record relating to the transaction itself indicated that at the time the deed was executed the grantor was in a normal state of mind.

Society Proceedings

COMING MEETINGS

Southern Minnesota Medical Association, Mankato, Jan. 20-21.

AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Sixth Annual Meeting, held in Chicago, Dec. 8-11, 1918

(Concluded from page 2177)

Program of the United States Public Health Service

Surg.-Gen. Rupert Blue, U. S. Public Health Service, Washington, D. C.: I would point out the need of special vigilance on the part of health authorities in order to prevent the introduction and spread of dangerous epidemic diseases by our returning soldiers. When the history of the present war is written, not the least significant part will be that which records the achievements in the field of preventive medicine. Hundreds of thousands of lives have been saved as a result of the excellent work in sanitation and preventive medicine carried on by the British, French and American military forces.

What can be done among soldiers in the unfavorable environment of war can and should be done among the civilian population in the more favorable environment of peace, and this can be accomplished by intensive health work carried on by the U. S. Public Health Service in cooperation with state and local authorities. The Public Health Service contemplates constituting itself a national center and clearing house for information, advice and educational assistance on all matters relating to public health and hygiene.

The National Welfare

Col. Victor C. Vaughan, Washington, D. C.: The government should assume control of certain functions of the educational system of the country. The youth of the country on reaching a certain age, to be determined after mature deliberation, should be drafted into the service. The only exemptions from this service should be the mentally incompetent. Those suffering with physical defects should be classified, their defects repaired so far as possible, and the training adapted to their individual needs. The period of training should cover two years, continuous or broken into terms. This training should be disciplinary, and to this extent military; but the primary and principal purpose should be the preparation of men, not for the fighting line, but for good citizenship. This service will be best administered under the War Department. The training should include the physical, mental and the moral man.

Physical development and the practice of personal and community hygiene should be one of the fundamentals. Instruction in the prevention and eradication of infectious diseases should be given by practical demonstration as well as by textbooks and lectures. Personal hygiene must be practiced in daily life. It is largely a matter of habit.

The English language must be taught, and its correct use demanded of all at all times. The history of our nation, its relation to other nations in time of peace and in time of war, its material resources, and its ideals, should hold an important position in the curriculum. The obligations and duties of citizenship should be impressed on all. To those lacking training in mathematics, physics, chemistry and biology proper instruction should be given.

Every individual should be given a substantial start in some industrial trade or profession. He should know how to take care of his own body, make a decent living, be a clean and intelligent citizen, and be ready at all times and under all conditions to render effective service to his country. These training schools should be without expense to the individual. He should be housed, clothed, fed and instructed by the government, and his family should be moderately compensated for his time. In fact, he should have the status of an enlisted man in the Army.

When he completes the courses at the training school he should pass into a reserve corps and should carry a qualification card showing his grades in physical, mental and moral fitness. In the reserve corps he should be examined at intervals of two years until he reaches 45 years of age. At these examinations his qualification card should be reviewed.

In addition to the service provided for above, the government should improve the efficiency and extend the functions of its health service. The registered area should be extended so as to embrace the whole country. Morbidity statistics should be collected on uniform cards. The hygienic laboratory of the Public Health Service should be developed, and opportunity should be given for the multiplication of research investigations. Both preventive and curative medicine should be placed at the service of all citizens socialized. Every community should have a health commissioner and such personnel as may be necessary, with hospital and laboratory adjuncts.

Venereal Disease Control

Dr. John Dill Robertson, Commissioner of Health, Chicago: Chicago secured an ordinance requiring the reporting of venereal diseases, June 29, 1917, the ordinance being practically in the form of the Australian law. It requires that the physician must report all cases of gonorrhea, syphilis and chancroid; the physician must give the patient an educational circular; in case the patient changes physicians, report must be made to the previous physician, and failure to continue treatment must be reported to the health department in ten days. In the first ten months of 1918, 6,258 cases of venereal disease were reported to the department. Known prostitutes are arrested by the police and brought to the Iroquois Memorial Hospital for the purpose of securing specimens for examination. When brought into court the women obviously guilty of crime are sentenced to the house of correction; others found infected are turned over to the health department and sent to the Lawndale Hospital. Of 480 males admitted to the house of correction in November, 1918, 6.25 per cent. were suffering with venereal diseases; and of the females, 11.6 per cent. I think it safe to say that not more than 1.5 per cent. of the population of Chicago is suffering with infectious venereal diseases. A municipal venereal disease clinic is essential for the enforcement of a venereal disease ordinance. At the Chicago clinic 630 men and ninety-one women were treated from Jan. 1 to Nov. 1, 1918.

A municipal venereal disease hospital is another essential. During the first ten months of 1918, Chicago treated 325 women between the ages of 15 and 53 in such a hospital. These women were kept occupied at such work as they were capable of doing. Statistics were obtained as to mental condition, educational status and occupations claimed by them. Morphin users were given treatment. Thirty-nine per cent. of these women had hooded clitoris, which suggests a possible predisposing cause for delinquency. Laboratory findings on specimens from patients showed 159 with syphilis positive; 127 with gonorrhea positive; 12 with mixed infection, and 27 nonvenereal.

Quack advertisements to the number of 1,500 were removed in Chicago, and 3,500 educational posters substituted. Druggists were educated against counter prescribing. With the absolute and full cooperation of the physician and the druggist, venereal disease can be controlled as effectively as tuberculosis.

Lipovaccines

Col. Eugene R. Whitmore, Washington, D. C.: In the U. S. Army, a number of lipovaccines have been prepared. The triple lipovaccine is now the official vaccine. A pneumococcus lipovaccine is also being used. Meningococcus, dysentery, cholera, plague and streptococcus lipovaccines have been prepared and tried out. The lipovaccines have the advantages that the entire amount of bacterial material can be given at one dose, without severe general reaction; and the immunity response is at least as good as when the bacterial material is given in divided doses suspended in saline solution. The lipovaccines keep for at least eight months. These advantages are of importance in public health work. The lipovaccines are probably not adapted to use in therapeutics. It is necessary to guard against attempting to adapt the advantages of the lipovaccines to the preparation of shotgun vaccines.

Industrial Disease Administration at the Present Time

DR. EMERY R. HAYHURST, Columbus, Ohio: Several important problems are at hand in adjusting health administration to cover industrial diseases and hygiene. There are: (1) keeping the workers able to work; (2) providing for increasing numbers of women, older people and youths; (3) maintaining all sanitary regulations; (4) watching especially against fatigue; (5) not only maintaining average vitality but raising the average vitality; (6) counteracting the indifference promoted by personal prosperity, number of available jobs, etc., and (7) continuing the spread of fundamental information calculated to save human waste—so-called hygiology. One establishment in Ohio, employing over 5,000 women, increased its output 10 per cent. almost over night by giving heed to advice from the state department of health on temperature and humidity control in the workrooms, and at the same time cut down, remarkably, absences, quittings and a peculiar form of illness that was spreading through the plant.

Shortage of hygienists and sanitarians to meet the demands is acutely felt, and it is necessary for certain properly equipped schools or the U. S. Public Health Service to select and instruct by short courses a large number of engineers, sanitarians and physicians in the principles of industrial hygiene and diseases.

Modern Advertising and the Nostrum Evil

DR. ARTHUR J. CRAMP, Chicago: The evils connected with the sale of medicinal preparations of the home remedy type—the so-called "patent medicines"—are due to proprietorship and to the advertising methods that such proprietorship engenders. The perpetual proprietary monopoly which the "patent medicine" seller obtains by means of our trade-mark laws makes extensive advertising profitable and, together with secrecy of composition, has led to the gross abuses that have made the "patent medicine" business a menace to the public health. Modern advertising differs from its earlier prototype in that whereas the latter chiefly, if not exclusively, notified the public simply where and how its demands might be supplied; the former is based largely on the principle of creating demands for the products advertised. No man has any moral right so to advertise as to make well persons think they are sick and sick persons think they are very sick. Such advertising is an offense against the public health. Modern medical advertising by the skilful use of testimonials, and by plausible claims, direct or inferential, leads the public to magnify every trivial ailment, deceives those who are well into the belief that they are sick, and impresses the idea that the products are panaceas for whatever ailments the public is suffering from or can be deceived into believing itself to be suffering from. Medicaments of the home remedy type for the self-treatment of simple ailments should contain no dangerous or habit-forming drugs; should not be recommended for diseases that are obviously too serious to be self-treated; should be nonsecret, and should not be sold under false claims or so as to make the public magnify trivial ills and dose itself unnecessarily. There are plenty of official products (U. S. P. and N. F.) to meet every legitimate requirement for medicaments for self-treatment. These products are nonsecret; their purity is established and protected by law. As any competent pharmaceutic house can make them, the elements of secrecy and proprietorship are removed and the incentive to fraudulent or misleading advertising claims is abolished.

Tuberculosis Control Following War Conditions

DR. D. B. ARMSTRONG, Framingham, Mass.: The war will undoubtedly increase the magnitude of the tuberculosis problem in the United States, just as it has in foreign countries. In 1913, the death rate from pulmonary tuberculosis in England and Wales was 101 per hundred thousand people living. By 1916 this had increased to 118 per hundred thousand. In Birmingham alone, for instance, the 1913 rate of 119 per hundred thousand had increased in 1917 to 130 per hundred thousand. As a result of the special tuberculosis work being done under the auspices of the National Tuberculosis Association in Framingham, we have in this community excellent evidence to show that tuberculosis exists in our civil population to a greater extent than had hitherto been supposed. In Framingham, which is a typical industrial town with average health conditions, there were on Jan. 1, 1917, twenty-seven known cases of tuberculosis. After an extensive search for tuberculosis, the number of living known cases was increased to 181 in November, 1918. An intensive examination of about two thirds of the population of this town has shown that approximately 2 per cent. of the people have tuberculosis in either an active or an arrested form. This means that in the United States as a whole there are 2,000,000 cases of tuberculosis, and at least 1,000,000 people who have the disease in an active and possibly contagious form.

How are we to meet this national problem? In the first place, it means adequate appropriations for general health and antituberculosis work. Where we have been spending 15 cents or 25 cents per capita on health work, we must spend from $1 to $2 per capita if we are going to meet our obligations. As to tuberculosis in particular, it is important to find the early cases and to get them under adequate treatment. The public at large must be educated more intensively than hitherto regarding the principles of hygienic living.

Work of the Department of Health and Sanitation of the United States Shipping Board

LIEUT.-COL. PHILIP S. DOANE, M. C., U. S. Army, Director of Health and Sanitation, U. S. Shipping Board Emergency Fleet Corporation: This department is maintaining supervision over the health of about 430,000 employees scattered over 7,000 miles of coast line. Like all war emergency industries, the Shipping Board had to organize its various departments in such a manner as to meet its needs. The problem confronting us was to secure such conditions in shipyards and their environment as to maintain the workers in the healthy, vigorous condition so essential to the speedy construction of ships. Arrangements are made with local hospitals for the care of injured employees. Yards employing more than 10,000 men without the nearby hospital facilities have their own hospital, constructed according to plans and specifications outlined by the Army, with suitable modifications.

The surgical care of injuries is given special attention. All employees are urged to report for dressing with every injury, no matter how slight; consequently the monthly reports show a percentage of injuries often running as high as 50 per cent. of the men employed. The board is cooperating with the Surgeon-Generals of the Army, Navy, and Public Health Service, and the Committee on National defense, in carrying on a prophylactic venereal campaign both in the shipyards and in the cities and towns surrounding them. This campaign is becoming so general in character that state laws are necessarily being enacted to favor this work.

The eradication of mosquitoes is an important measure at shipyards. This department cooperates with local and state health authorities to obtain suitable drainage of the yard and its environment, filling in low land, oiling stagnant water, etc. In mosquito countries, the screening of building and sleeping quarters is urged.

Owing to the efficient action of the medical and sanitary experts, not a single shipyard has been compelled to shut down during the influenza epidemic. It was strange that the Pacific Coast yards should have been affected before those of the Great Lakes region.

Team Work in Public Health

DR. GEORGE E. VINCENT, President of the Rockefeller Foundation, New York: The work of the fifty-seven health societies of the United States is to a large degree unsuccessful because too much time is spent in the collection of funds and preaching about accomplishments, thereby leaving no time for scientific investigation. It is certain that so long as the voluntary agencies of public health of this country persist in the present policy of isolation and rivalry, seeing their specialties out of focus, unconsciously misleading the public, hampering the development of unbiased research, and preventing the consistent and careful education of the people, they will be in no position to bring to bear on the federal government pressure for the creation of a federal department of health with a secretary in the President's cabinet. Three things are necessary to correct these evils: (1) the establishment of a definite body of scientific knowledge; (2) effective demonstration of the application of such knowledge, and (3) systematic, unified, consistent education of the public in the scientific basis of health and the principles of procedure.

Future State Policy in Relation to Health and Welfare

Mr. Frederick L. Hoffman, Newark, N. J.: A beginning has been made in this country through the Children's Bureau at Washington in initiating a plan for the systematic measurement of children of preschool age, subsequently, no doubt, to be followed by the introduction of systematic measurements of children during the teaching period from the primary grade to the university. The second prerequisite for a rational and effective public health administration is the accurate and complete registration of all serious illnesses, whether in private practice or in institutions under medical supervision and control. The third fundamental principle of modern health administration is a state medical service, including all the medical services now rendered in connection with public institutions, poor-law establishments, schools, state and municipal dispensaries, clinics of all kinds, etc.

Vaccination as a War Measure

Dr. Maurice Ostheimer, Philadelphia: Smallpox has increased during the war throughout the United States. In many instances the spread of the disease was definitely to be attributed to unvaccinated workers in the munition plants. In some instances a migrating unvaccinated worker developed smallpox and gave the disease to one or more workers in one, two or even three plants before he was caught and isolated. In Philadelphia alone up to Oct. 18, 1918, thirty-three cases of smallpox had been reported, while there had only been twelve during the year 1917 and only five in 1916. It might prove practicable for the U. S. Public Health Service to request of the U. S. Railway Administration that tickets for places outside of the city be sold only to a purchaser who presents certificates of successful vaccination for each member of his party.

Clinic for Vocational Diseases

Dr. Louis I. Harris, New York: Very few municipalities have done anything in industrial hygiene. This traditional idea that to do anything we must have elaborate outfit and budget has retarded progress in many communities of an industrial character. In New York City less than 200 cases per annum of occupational diseases were reported by all the 8,000 physicians, all the hospitals and dispensaries and all the industrial corporation physicians, an infinitesimal fraction of the number of cases that will subsequently be registered as tuberculosis cases, as cases of all kinds of occupational poisoning, and the things in which the occupational factor will never be recognized. The vocational clinic in New York gives to the poor men in the community, whom the health authorities are obligated to protect, protective medical care.

Closing Schools as a Means of Controlling Epidemic

Mr. Willard S. Small, Chairman, Bureau of Education: Fifty cities in thirty-one states were asked to give an opinion on this subject. Replies were received from thirty-two cities in nineteen states. An analysis of these replies shows that closure of schools as a means of controlling epidemics of the six diseases specified is unnecessary, unscientific and unjustifiable. The proper method of control involves a sufficient inspectorial force of physicians and nurses to maintain close supervision of cases and contacts; enforcement of isolation and quarantine under elastic administrative regulations; the employment of clinical and laboratory tests and reliance on such data; close correlation of the school medical inspection with the health department on the one hand, and with the school forces on the other hand, and continuous education of the public.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

November, 1918, **1**, No. 11

1 Tuberculin in Diseases of Eye. J. E. Weeks.—p. 753.
2 Tuberculoma of Iris: Report of Case. T. A. Mulcahy and J. Ewing.—p. 757.
3 Tower Skull with Double Optic Nerve Atrophy. M. Goldenburg.—p. 760.
4 Inertia of Adjustment of Eye for Clear Seeing at Different Distances. C. E. Ferree and G. Rand.—p. 764.
5 Permanent Vascular Changes Following Injuries to Eye. E. Jackson.—p. 776.
6 Cases of Unrecognized Chronic Simple Glaucoma. E. J. Brown.—p. 780.
7 Paralytic Strabismus Cured by Simple Operative Procedure. J. S. Wyler.—p 783.
8 Relation of Lues to Ocular Pathology. J. M. Blackwood.—p. 784.
9 Infantile Dacryocystitis. F. T. Clark.—p. 785.

American Journal of Public Health

November, 1918, **8**, No. 11

10 Fraternal Orders and American Public Health Association. L. K. Frankel.—p. 813.
11 Fashions as Affecting Public Health. J. Throckmorton.—p. 817.
12 Critical Study of Bacterial Count in Water and Sewage. M. F. Stein.—p. 820.
13 Nation's Need of Physical Education. W. S. Small.—p. 830.
14 Sewage Disposal Problem in Chicago. C. D. Hill.—p. 833.
15 Dissolved Oxygen as an Index of Pollution of New York Harbor. K. Allen.—p. 838.
16 Vaccination as a War Measure. M. Ostheimer.—p. 843.
17 The 1890 Epidemic of Influenza in Chicago and Its Influence on Mortality, 1890 to 1893 Inclusive. W. A. Evans and M. O. Heckard.—p. 845.
18 Influenza Epidemic in Chicago. J. D. Robertson and G. Koehler.—p. 849.

Annals of Surgery, Philadelphia

November, 1918, **68**, No. 5

19 *Value and Limitations of Laboratory Studies of Acidosis in Surgery. G. W. Crile.—p. 457.
20 Hospitals of American Expeditionary Force. C. H. Peck.—p. 463.
21 *Quinin-Formaldehyd Solution in War Surgery. J. T. Pilcher.—p. 467.
22 History Analysis Applied to Surgical Diseases of Biliary Tract and Pancreas. A. O. Whipple.—p. 471.
23 Myositis Ossificans Progressiva: Digest of Literature. J. Rosenstirn.—p. 485. (To be continued.)
24 *Radiolucent Semilunar Shadow Occurring as a Constant Factor in Certain Cases of Severe Intermittent Headache. A. M. Miller and E. G. C. Williams.—p. 521.
25 Important Points Relating to Surgical Treatment of Prostatic Hypertrophy. A. J. Ochsner.—p. 522.
26 *Ambulance Airship. N. W. Sharpe.—p. 526.

19. **Acidosis in Surgery.**—In the problem of shock exhaustion, the success of such restorative measures as oxygen, the intravenous injection of sodium bicarbonate with glucose and, above all, sleep—deep, untroubled sleep—Crile says, lends support to the laboratory conception that acidosis—intracellular acidosis—is the fundamental condition present in exhaustion from any cause.

21. **Quinin-Formaldehyd Solution in War Surgery.**—The claims made by Pilcher for this solution are that it is simple of preparation, stable, can be concentrated for transportation, the strength can easily be increased or diminished, and it can be used in an early stage of wound treatment, at the field or evacuation hospital. The solution is thus prepared: quinin sulphate, 1 gm.; hydrochloric acid, 0.50 c.c.; glacial acetic acid (99 per cent.), 5 c.c.; sodium chlorid, 17.50 gm.; aqueous solution of liquor formaldehydi, 1 c.c.; thymol, 0.25 gm.; alcohol (90 per cent.), 15 c.c.; water, q. s. ad 1 liter. (1) Dissolve the quinin in the hydrochloric and acetic acids. (2) Dissolve the sodium chlorid in the water. (3) Dissolve the thymol in the alcohol. Add No. 1 and No. 2, then the liquor formaldehydi (40 per cent), and finally the thymol solution. The solution is best applied as directed for the use of the Carrel-Dakin solution, or may be injected through the Carrel tubes every two hours, or more frequently, if necessary, to keep the wound bathed with it.

To test its efficacy it was employed in 100 cases of severely infected wounds at the American Red Cross Military Hospital No. 5, mostly compound comminuted fractures, which had been treated for from ten days to two weeks or longer with Dakin's solution, and in which the bacterial flora showed no signs of diminution in the great majority of instances. There was a marked drop in temperature and pulse in many cases on changing from Dakin's to quinin-formaldehyd solution, without any operative procedure. Some wounds showing a count of 10 to 15 bacteria per field apparently have been rendered free from germs within three days. That is to say, none have been found in the repeated examination of fifteen fields. Thirty consecutive cases treated within thirty-six to forty-eight hours after receipt of injury, on whom preoperative smears were made and the presence of infection established, were rendered sterile within forty-eight hours and have continued to show absence of any bacteria on repeated counts subsequently, with one exception.

24. **Radiolucent Semilunar Shadow Occurring in Cases of Intermittent Headache.**—As a cause for the appearance of this semilunar shadow, immediately below the cranial vault, as a constant factor in these cases, Miller and Williams offer the hypothesis that it is due to hydrostatic changes in the cerebrospinal cavity. The cases which have shown this shadow give parallel histories. All the patients entered the hospital for the relief of severe intermittent headaches, which do not respond to the usual methods of treatment. The four cases cited occurred in adults in middle life. Two of them were males, giving history of remote head injury, one of them nine years and the other twenty-seven years previous to entry to the hospital. Of the two females, neither had a history of injury. One was decidedly neurotic. All cases were free from gross anatomic disease or lesion. One male showed marked change in disposition, being considered by his family as dangerous on account of violent attacks of anger from trivial causes. This is the only suggestion of mental instability shown by any of the patients. Two deaths have occurred. One male, who was injured nine years previously, died from cerebral hemorrhage, and one female from a pulmonary lesion.

26. **Ambulance Airship.**—This ambulance was designed by Sharpe primarily for the welfare of the patient, his personal comfort, and his personal safety. No alteration of the streamline fuselage has been made, nor alteration of the fuselage that would involve a structural weakening; the requisite alterations are simple in design, inexpensive in material and labor, and well within the capability of the shop personnel of the flying field. The rear cockpit has been abolished, and a chamber developed within the fuselage for the carriage of a litter and a man, with a maximum clearance of 17 inches and a minimum of 14 inches. The usual turtle-back is unchanged, save that a stronger and more dependable locking device has been employed. Additional protection against the air (especially in case of pronounced shock) may be secured by clamping into place a translucent celluloid shield. The litter is essentially the service litter with but scant modification. Strong clamps, activating on the eccentric principle and attached to the longeron litter bed, engage in the litter longerons, which have been suitably metal-sheathed for their reception.

Boston Medical and Surgical Journal

Dec. 5, 1918, **179**, No. 23

27 *Blood Pressure in Insane Patients Aged Sixty and Over. E. T. Gibson and A. M. Kimberly.—p. 693.
28 Report of Hospital for Convalescents. W. H. Devine.—p. 696.
29 Speech-Reading for the War Deaf. C. J. Blake.—p. 697.

27. **Blood Pressure in Insane Patients.**—A careful blood pressure study was made by Gibson and Kimberly of 163 insane persons confined in an asylum. They found that diastolic pressures in both sexes vary little after 60. In men systolic pressures increase about 10 millimeters of mercury for each five years up to 75. Systolic pressures in women increase abruptly in the years from 65 to 69. In older women the pressure is less and does not vary with age. Both diastolic and systolic pressures are distinctly higher in women. About half of both men and women had evidence of cardiorenal disease. Blood pressures average the same in this group as in all the men and women. Blood pressures in men average the same in those with positive Wassermann reaction as in those with negative Wassermann reaction. The blood pressure is not affected significantly by the psychiatric diagnosis, except in senile dementia, in which the averages for both sexes are higher. One third of the women and one fifth of the men have systolic blood pressures over 180 mm. Evidence of heart and kidney disease was found in all but one of these men but in only two thirds of the women.

Journal of Bacteriology, Baltimore

September, 1918, **3**, No. 5

30 *Synthetic Medium for Direct Enumeration of Organisms of Colon-Aerogenes Group. S. H. Ayers and P. Rupp.—p. 433.
31 *Endo Medium for Isolation of B. Dysenteriae and a Double Sugar Medium for Differentiation of B. Dysenteriae (Shiga and Flexner). I. J. Kligler and J. Defandorfer.—p. 437.
32 Cross-Agglutination of B. Coli Communis and B. Dysenteriae Shiga. I. J. Kligler.—p. 441.
33 Evolution and Classification of Bacteria. R. S. Breed, H. J. Conn and J. C. Baker.—p. 445.
34 Classification and Nomenclature of Bacteria. The Subgroups and Genera of Thiobacteriales. R. E. Buchanan.—p. 461.
35 Proteolytic Activities of Soil Microorganisms, with Special Reference to Fungi. S. A. Waksman.—p. 475.
36 *Modification of Technic of Voges and Proskauer Reaction. G. C. Bunker, E. J. Tucker and H. W. Green.—p. 493.

30. **Medium for Enumeration of Colon-Aerogenes Group.**—Instead of depending on inhibition of certain species of bacteria, Ayers and Rupp believe that it is far better to simplify the culture medium to a point where the sources of nitrogen and carbon are in such a form as to allow only the growth of the organisms desired. With this view in mind, they have prepared a simple synthetic medium in which there is a single source of nitrogen, namely, sodium ammonium phosphate and a single source of carbon, namely, lactose. The composition of the medium is as follows: Solution 1: Sodium ammonium phosphate, 0.4 per cent.; acid potassium phosphate, 0.2 per cent.; lactose, 1 per cent.; dissolve in distilled water. Solution 2: Filtered solution of agar in distilled water, 3 per cent. Mix solutions 1 and 2 in equal proportions while hot and put up in definite amounts (100 c.c. or more) into flasks or bottles and then sterilize. A slight precipitate may appear on sterilization, but this does not interfere with the count and may not appear on the plate. At the time of plating, after the agar medium is melted and while at its highest temperature add for each 100 c.c. of medium 0.5 c.c. of a 1 per cent. alcoholic basic fuchsin solution and follow at once with 0.5 c.c. of a freshly prepared 5 per cent. sodium sulphite solution. Mix thoroughly and allow to cool, then pour into plates as usual. The red color is not entirely destroyed by the sulphite and at time of plating the medium is pink. The colonies appear on the plates as medium sized red colonies with a deep red ring around them. The color about the colony is quite characteristic, although some have only a deep red color in the colony itself. Bacteria which may also grow on the medium and which do not belong to the colon-aerogenes group usually give pink or uncolored colonies which can be distinguished readily from those of the gas formers.

31. **Endo Medium for Isolation of B. Dysenteriae.**—A mannite-glucose double sugar medium on the principle of Russell's double-sugar agar is described by Kligler and Defandorfer, to be employed for rapid differentiation of the Shiga and Flexner class of dysenteric bacilli.

36. **Technic of Voges and Proskauer Reaction.**—The authors claim that the use of 0.5 c.c. of a 45 per cent. solution of sodium hydroxid, Syracuse watch glasses, and 1 c.c. of the culture results in the development of a greater number of positive Voges and Proskauer reactions in a shorter interval of time than the method given in the latest (1917) edition of "Standard Methods of Water Analysis." An incubation period of two days at 30 C. is recommended in place of that of five days in order to obtain the maximum number of positive Voges and Proskauer reactions from glucose potassium phosphate broth. In order to avoid separate cultures for this test, 1 c.c. portions may be withdrawn from those incubated for the methyl red test.

Journal of Biological Chemistry, Baltimore

November, 1918, 36, No. 2

37 *Feeding Experiments with Raw and Boiled Carrots. M. C. Denton and E. Kohman.—p. 249.
38 *Creatinuria. Exogenous Origin of Urinary Creatine. H. Steenbock and E. G. Gross.—p. 265.
39 *Synthetic Capacity of Mammary Gland. E. B. Hart, V. E. Nelson and W. Pitz.—p. 291.
40 Comparative Metabolism of Certain Aromatic Acids. C. P. Sherwin.—p. 309.
41 Determination of Tyrosine in Proteins. C. O. Johns and D. B. Jones.—p. 319.
42 Hydrolysis of Kafirin. D. B. Jones and C. O. Johns.—p. 323.
43 Quantitative Determination of Phosphorus by Nephelometric Method. E. B. Meigs.—p. 335.
44 Preparation of Gulonic Lactone. F. B. La Forge.—p. 347.
45 Determination of Carbon Dioxid in Carbonates. D. D. Van Slyke.—p. 351.
46 *Mineral Metabolism in Experimental Acidosis. K. Goto.—p. 355.
47 Folin's DirectNesslerization Method for Determination of Nitrogen. L. Langstroth.—p. 377.
48 Determination of Urobilin in Urine. S. Marcussen and S. Hansen.—p. 381.
49 Nutrition of Fish. S. Morgulis.—p. 391.
50 Animal Calorimetry. Cause of Specific Dynamic Action of Protein. H. V. Atkinson and G. Lusk.—p. 415.
51 Sulphur Requirement of Red Clover Plant. W. E. Tottingham.—p. 429.
52 *Experimental Scurvy. Influence of Meat and Various Salt on Development of Scurvy. W. Pitz.—p. 439.
53 Method for Identification of Certain Uramino-Acids in Presence of Amino-Acids and Urea. A. Rohde.—p. 467.
54 Source of Error in Use of Picric Acid in Colorimetric Estimations in Biologic Fluids. A. Rohde and M. Sweeney.—p. 475.
55 Adaptation of Cobaltic Nitrite. Method for Estimation of Potassium in Blood. S. W. Clausen.—p. 479.

37. **Feeding Experiments with Raw and Boiled Carrots.**—In the present food crisis, a knowledge of the dietetic properties of root vegetables is of importance, particularly so since the use of dehydrated vegetables promises to come into general vogue. With these considerations in mind, Denton and Kohman instituted feeding experiments with carrots, using albino rats. They found that carrots, when properly supplemented with starch, purified commercial casein, butter or lard, and salts, to such an extent that 50 per cent. of the caloric value of the diet is still derived from carrots, will produce normal growth and reproduction in albino rats. Carrots as an exclusive diet, except for the addition of calcium, phosphorus, sodium and chlorine, may support animals in apparently good health for as long as sixteen weeks. Although there is no growth, the animals on this diet may maintain and at times even increase their own body weight. Carrots contain a considerable amount of both the water-soluble and fat-soluble vitamins. Ordinary methods of cooking do not perceptibly injure the nutritive value of carrots, or certainly not when used as part of a mixed diet. However, a considerable portion of the caloric value of the food is lost when the water used in cooking is rejected.

38. **Creatinuria.**—Steenbock and Gross believe that creatin is an end-product in the catabolism of certain precursors in the protein molecule just as urea is of others. Creatin generally occurs in the urine in instances where there is an increased protein catabolism; namely, during fevers, in exophthalmic goiter, in tumor cachexia, in post partum resolution of the uterus, in hydrazine and phosphorus poisoning, and in diabetes mellitus. Creatin in the urine is reduced or prevented by just those agents which reduce protein catabolism. For instance, carbohydrates and alkaline salts both reduce protein catabolism and both reduce creatinuria; fats do not reduce protein catabolism and correspondingly do not reduce creatinuria. In regard to the cause for the difference in the behavior of men and women in the facility with which creatinuria is produced on ingestion of protein, the authors believe it possible that this may be related to the variations well known to obtain in the activity of the thyroid mechanism. In normal well nourished men, creatinuria has never been observed or experimentally produced. In women, however, creatinuria usually obtains. It is suggestive that periodic variations in thyroid activity occur with the menstrual period varying in degree with different women and that during pregnancy when the thyroid is also affected pronounced creatinuria has often been reported.

39. **Synthetic Capacity of Mammary Gland.**—The evidence presented in this paper makes it very probable that the mammary gland has not the capacity to synthesize the amino-acid, lysine. Further, the evidence submitted supports the view that as far as the proteins are concerned milk secretion, like growth, is ultimately dependent on the quality and quantity of amino-acids ingested with the food. The authors hold to the view that the amino-acid lysin is not dispensable for normal maintenance.

46. **Mineral Metabolism in Experimental Acidosis.**—The results of Goto's experiments indicate with a fair degree of decisiveness that next to the bicarbonates of the body fluids, the first major reserves of alkali drawn on in acid intoxication of rabbits are the alkali phosphates, particularly potassium phosphate, of the muscles, and the calcium carbonate of the bones. The bones do not lose calcium phosphate in appreciable amounts.

52. **Experimental Scurvy.**—The effect of meat and tricalcium phosphate on the development of scurvy was investigated by Pitz. He found that an improvement of the protein of the diet will protect guinea-pigs from scurvy for a number of weeks and will greatly prolong the life of the animals, even though the physical character of the diet has not been improved. But while laxatives and lactose will prevent the development of scurvy in guinea-pigs for twenty weeks, improvement in the protein of the diet, even when 10 per cent. of meat is added, will not protect them for more than thirteen weeks. When tricalcium phosphate was added with the meat the animals were protected for eighteen weeks. Sodium chlorid when added to the milk, rolled oats, meat, tricalcium phosphate ration, also effected some further protection, demonstrating that low chlorin is one among the many factors that may cause delay in the development of scurvy. This latter point is further emphasized by the remarkable protection afforded guinea-pigs against scurvy by the ingestion of calcium chlorid in the ration and shows that the calcium and chlorin ions are of greater importance in the development of this disease than is phosphorus. The physical character of the diet and the character of the flora of the digestive tract are clearly of prime importance in the production of this disease, but other factors, such as those which make the diet more nearly chemically complete, which stimulate appetite and increase the flow of digestive juices and increase the resistance of the animals, which decrease the permeability of the intestinal wall, and which aid in correcting a deranged chlorin metabolism, are of great importance and will protect the animals from scurvy for a considerable time. These experiments point to the little emphasized rôle of calcium salts in nutrition; namely, that of controlling the permeability of various animal tissues and thereby affording protection against invading agents.

Journal of Cutaneous Diseases, Chicago

December, 1918, 36, No. 12

56 Pemphigus: A Clinical Study. H. Goldenberg.—p. 557.
57 Toxic Erythemas and Their Bullous Manifestations. D. Lieberthal.—p. 568.
58 Retention Cysts of Mucous Membrane of the Lip. R. L. Sutton.—p. 579.

Journal of Infectious Diseases, Chicago

December, 1918, 23, No. 6

59 *Virulence of Tubercle Bacilli Isolated from Sputum. H. J. Corper.—p. 493.
60 *Specific Fats as Factors in Immune Processes. C. C. Warden.—p. 504.
61 *Coagulation of Blood and Anaphylactic Shock. H. A. Bulger.—p. 522.
62 Bartlett and O'Shansky Modification of Wassermann Reaction. E. H. Ruediger.—p. 533.
63 *Differentiation and Distribution of Paratyphoid-Enteritidis Group. E. O. Jordan and E. E. Irons.—p. 537.
64 Failure to Obtain Potent Serum from Horse Injected with Poliomyelitic Material. S. G. Dixon and J. B. Rucker, Jr.
65 Metabolism of Pathogenic Actinomycetes (Streptothrices). S. A. Waksman.—p. 547.
66 *Case of Rat-Bite Fever. R. Tunnicliff and K. M. Mayer.—p. 555.
67 *Hemolytic Streptococci in Milk. D. J. Davis.—p. 559.
68 *Streptococci of Actinomyces-like Granules of Tonsils. I. Pilot and D. J. Davis.—p. 562.
69 Chromogenic Bacillus from a Case of Roup. B. F. Kaupp.—p. 568.
70 *Immune Reactions with Diplococci Isolated from Measles and Rubella. R. Tunnicliff and M. W. Brown.—p. 572.
71 Plate Method for Isolating Anaerobes. G. F. Dick.—p. 578.

59. **Virulence of Tubercle Bacilli in Sputum.**—The tubercle bacilli isolated by Petroff's method from the sputum of ninety cases of pulmonary tuberculosis in man, of which eight were incipient, twenty moderately advanced and sixty-two far advanced, were found to be of the human variety in eighty-eight of these cases. Of these eighty-eight cultures examined for virulence to guinea-pig (by subcutaneous injection), eighty-six proved to be virulent in amounts of 0.000,001 mg., ten of these were not examined below this amount and sixty-six produced tuberculosis (beyond the local glands) in guinea-pigs within two months in 0.000,000,01 mg. amounts. One of the two low virulent tubercle bacilli only produced a slight tuberculosis in guinea-pigs in 0.001 mg. amounts within two months, while the other produced no tuberculosis beyond the local involvement even in 1 mg. amounts.

No relation was observed by Corper between the virulence of the human tubercle bacilli for the guinea-pigs and rabbits, and the rapidity of the disease in man. No appreciable difference, within the limits of error of the experiments, between the virulence of human tubercle bacilli tested by subcutaneous injection for young (4 months) and mature (1 year) male guinea-pigs was noted on section forty-two and sixty-two days after infection. Corper found that human tubercle bacilli isolated on Petroff's medium do not appreciably alter their virulence for a period of from one to three months as tested in guinea-pigs, provided no detrimental influences are introduced. A second seeding on Petroff's medium within this time produces bacilli of equal virulence to guinea-pigs to the primary. Treatment of human tubercle bacilli with 3 per cent. sodium hydroxid solution for one hour at 37 C. does not appreciably affect the virulence of the bacilli for guinea-pigs while 6 per cent., sodium hydroxid for one hour at 37 C. will destroy the virulence of some cultures. The test for virulence of human tubercle bacilli isolated from the sputum of the same patient at different intervals (one and three months) give concordant results in guinea-pigs.

60. **Specific Fats in Immune Processes.**—The antigens dealt with by Warden were the specific fat antigens of the red blood cells of the sheep, the gonococcus, *Spirochaeta pallida*, the typhoid bacillus, and the cholera vibrio. He found that the fat complexes characteristic of certain bacteria and other cells replace the cells themselves in the production of specific antibodies in the blood of rabbits injected with them. The specificity of the antibodies obtained by the injection of cells probably depends in part or wholly on the configuration of the fats constituting the bulk of the cell surfaces.

61. **Coagulation of Blood and Anaphylactic Shock.**—Bulger is of the opinion that the changes in the coagulability of the blood during anaphylactic shock are due to changes in that stage of the coagulation process at which thrombin is formed through the interaction of prothrombin, calcium, thromboplastin and antithrombin (?). These changes are probably due to variations in thromboplastin. Antithmorbin changes are not great. In some animals there may be an increase in antithrombin which would aid in retarding the coagulation of the blood. There is no increase in antithrombin in rabbits. There was a marked increase in the rate of fibrinolysis after anaphylactic and peptone shock.

63. **Paratyphoid-Enteritidis Bacilli in Human Intestine.**—This paper deals with examinations of the feces of typhoid patients and convalescents and of patients suffering from other diseases. Nothing was found by Jordan and Irons that supports the assumption of a common or widespread distribution of paratyphoid bacilli apart from their association with specific disease conditions. Paratyphoid-like organisms are isolated more frequently from the stools of active typhoid cases than from those of healthy persons who had had typhoid some years previously. The intestinal flora of the latter in fact does not differ appreciably from that of normal individuals not known to have had typhoid. In a number of active typhoid cases different varieties of paratyphoid-like bacilli were found in the stools of one and the same individual. This corresponds with the generally heterogeneous bacteriologic characters of such stools. It is evident that the bacterial flora of typhoid stools is more varied than that of normal stools; however, the authors see no reason for assuming without further investigation that this condition is peculiar to the intestinal tract of typhoid patients. The observations made by Jordan and Irons on the stools of persons suffering from other disorders, especially disorders of the alimentary tract, indicate that the proportion of bacterial abnormalities in such cases is probably not very different from that in typhoid cases.

66. **Rat-Bite Fever.**—The chief points of interest in this case of rat-bite fever are the presence of a streptothrix in the polymorphonuclear leukocytes during life; in blood cultures after death; in smears of bone marrow, and possibly in the ganglion cells near the suprarenals. The streptothrix isolated in this case is more closely related culturally and morphologically to *Streptothrix putorii* than to *Streptothrix muris-ratti*. Morphologically, it differs from *Streptothrix putorii* in being shorter, as a rule. It differs culturally in producing a grayish color rather than a grayish-yellow color on glucose-blood agar, in growing less abundantly on plain and glucose agar, and in fermenting glucose, raffinose, maltose and leontose.

67. **Hemolytic Streptococci in Milk.**—Ninety-two samples of milk, forty-six pasteurized and forty-six certified, were examined by Davis. Hemolytic streptococci of the lacticus type were found in 23 samples. They were far more common in nonpasteurized than in pasteurized milk. They are less virulent for rabbits than the hemolytic streptococci of human origin. Two strains were found with moderate pathogenic power for rabbits. Davis points out that while, in general, one may practically be sure that organisms of the lacticus type are not dangerous to man, still individual organisms or strains of human, milk or bovine origin suspected of being responsible for sore throats or other infections in man should be studied carefully and compared with a view to finding specific common characters.

68. **Streptococci of Granules in Tonsils.**—Two types of streptococci, *S. hemolyticus* and *S. viridans*, were isolated by Pilot and Davis from the actinomyces-like granules of the tonsils. The viridans type showed strong anaerobic properties. The hemolytic cocci did not. Otherwise, the streptococci in their cultural and morphologic characteristics and pathogenic properties resemble streptococci from various parts of the mouth and from the crypts of normal and diseased tonsils.

70. **Immune Reactions in Measles and Rubella.**—Complement fixation tests were made by Tunnicliff and Brown with measles and rubella serum using, as a rule, a suspension of the diplococci isolated from the blood of measles patients, but also a mixture of strains, as the measles antigen, and a mixture of strains isolated from the blood and throat of rubella patients for the rubella antigen. The results indicate that the serum of measles and rubella patients contain complement fixing bodies for their respective diplococci to a slight degree early in the disease at about the same time the increase in opsonins occurs. Rabbits injected with various strains of measles and rubella diplococci develop agglutinins and opsonins. Agglutinins are demonstrable in the blood of immune measles rabbits often in high dilutions, both with homologous and heterologous measles strains. Satisfactory agglutination experiments are not possible, as a rule, until after long isolation of the diplococcus on account of spontaneous agglutination. Agglutinins are present in the serum of immune rubella rabbits, but generally only for the homologous strains. Specific opsonins are demonstrable in the blood of immune measles and rubella rabbits in high dilutions, and furnish the easiest and most reliable immunological method so far found, to differentiate measles and rubella diplococci from each other and from other nonhemolytic diplococci and streptococci.

Journal of Laboratory and Clinical Medicine, St. Louis

November, 1918, 4, No. 2

72 *Clinical Pathology of Mustard Gas (Dichlorethylsulphide) Poisoning. G. R. Herrmann.—p. 1.
73 Diagnosis per Exclusionem in Ordine. E. E. Southard.—p. 31.
74 *B. Influenza in Sinusitis and Meningitis. Report of Cases. G. R. Lacy.—p. 55.
75 Comparative Values of Some Local Anesthetics. H. C. Hamilton.—p. 60.

72. Clinical Pathology of Mustard Gas Poisoning.—The blood and urinary changes in thirty soldiers gassed with mustard gas were studied by Hermann. These cases were of a very interesting variety, from the most severe types, those, which resulted fatally, to those showing only the slightest lesions, such as the most mild type of conjunctivitis. The mild cases of mustard gas burns of the skin show no changes in the blood or urine. Moderately severe and severe cases of mustard gas burns of the skin with some involvement of the upper respiratory tract after the first week showed definite changes in urine, blood urea and blood. The urinary changes consisted in a diminution of the urinary output, increased concentration and acidity, albuminuria, and diminished urea and chlorid output. In the sediment were found casts, renal epithelium, red blood cells and an increased number of leukocytes. Under forced fluids prompt improvement occurred. Coincident with these urinary changes the blood urea was high, but approached normal with the improvement in the urinary condition when fluids were forced. The blood showed a slight secondary anemia with a well-marked polymorphonuclear leukocytosis, a definite eosinophilia, and the appearance of myelocytes and young forms of leukocytes. The blood platelets were usually increased. No evidence of hemolysis was found. No leukopenia was noted at any time. The leukocytosis reached its height coincidently with the height of the secondary infection and fell with the improvement of the infection.

The temperature, pulse and respiration charts showed in the severe cases an initial period of shock. With the development of the necrosis and the secondary infection there was a corresponding febrile reaction. The bacteriologic examination of the infected skin lesions and furuncles showed constantly the presence of *Staphylococcus pyogenes-aureus*. In one bronchial cast obtained streptococci were present. Herrmann believes that the changes in the blood and urine may be interpreted as dependent on the secondary infection and, in part, possibly, to the absorption of toxic products from the necrotic skin, rather than to any direct toxic action of mustard gas.

74. B. Influenzae in Sinusitis and Meningitis.—Lacy advises to centrifuge the spinal fluid and culture it on various mediums, always using blood agar. In all cases of meningitis, either mild or severe, of indefinite etiology, the presence of gram-negative bacilli in direct smears or on cultures from cerebrospinal fluid or from the accessory sinuses of the respiratory tract should be looked on as probable *B. influenzae*. Lacy reports two cases of frontal sinusitis and two cases influenzal meningitis. In these four cases there were found two types of *B. influenzae*, one which retains its original short bacillary form, indefinitely on artificial mediums and the other which readily develops filamentous forms after a few days on moist blood agar.

Laryngoscope, St. Louis

November, 1918, **28**, No. 11

76 Pathogenesis of Bronchial Asthma. W. Freudenthal.—p. 781.
77 Answer to Opponents of Radical Mastoid Operation. W. C. Bowers.—p. 790.
78 Modern Mastoid Operation. J. J. Kyle.—p. 805.
79 Points of Interest in Tests of Labyrinthine Function. C. Graef.—p. 811.
80 Therapy of Speech Defects. M. K. Scripture.—p. 817.
81 Nineteen Cases of Hyperplasia of Thymus Treated by Roentgen Rays. J. E. Benjamin and S. Lange.—p. 848.
82 An Elongated Styloid Process. S. Key.—p. 849.
83 Manikin for Practice and Demonstration of Special Instrumentation in Bronchoscopy and Esophagoscopy. T. Hubbard.—p. 851.

Medical Record, New York

Dec. 7, 1918, **94**, No. 23

84 Milder Forms of Manic-Depressive Psychoses and Manic-Depressive Constitution or Temperament. B. Onuf (Onufrowicz).—p. 969.
85 Prophylactic Vaccine Against So-Called Spanish Influenza. W. B. Stone.—p. 979.
86 Principles Underlying Surgical Treatment of Certain Infections About Sacrococcygeal Region. A. A. Landsman.—p. 980.
87 References to Hair by Rabelais. D. W. Montgomery.—p. 982.
88 Is There a Clinical Entity in Acute Vasomotor Paralysis? F. J. Farnell.—p. 984.
89 *"Endless Chain" Treatment of Pneumonia. C. R. Humbert.—p. 985.

Dec. 14, 1918, **94**, No. 24

90 Nervous Disturbances of Civil Population in War Time. J. L. Corning.—p. 1015.
91 Diplococcus Meningitis in Adenoid Tissue of Nasopharynx. J. D. Aronson and S. A. Friedberg.—p. 1017.
92 *Splenectomy Following Radium Treatment for Myelocytic Leukemia. H. Z. Giffin.—p. 1020.
93 Anthropometry of Soldiers. A. MacDonald.—p. 1023.
94 Hypertrophy of Prostate. L. Sexton.—p. 1027.
95 Case of Purpura Rheumatica. L. J. Friedman.—p. 1029.

89. "Endless-Chain" Blood Serum Treatment of Pneumonia.—Acting on the belief that persons convalescing from pneumonia have antibodies in their blood stream, Humbert bleeds the patient as soon as his condition permits, and bleeds as much and as frequently as possible. After the blood is collected it is allowed to stand at room temperature until the serum separates. It is then pipetted off and centrifuged. The clear serum obtained is now heated to 56 C. for thirty minutes. Tricresol, 0.3 per cent., is used as a preservative. This treated serum is placed in stock. When another patient comes in with pneumonia the type of pneumococcus is determined immediately and treatment is begun. When convalescence sets in, the above precedure is repeated. It is a case of one gives serum to two, two gives serum to three, and so on, the procedure becoming endless. The compatibility test is always performed. No attention is paid to syphilis in donors. Any living spirochetes that may be present in the blood stream are killed by the heating process. Tuberculosis is eliminated by frequent sputum and blood examinations after the crisis. The serum is administered intravenously, only once daily, unless the condition of the patient its critical. As high a dose as 170 c.c. has been administered without any untoward effects. Reactions occurred in only two of the eleven cases treated in each being of a mild character. There was one death—Type III.

92. Splenectomy Following Radium Treatment for Myelocytic Leukemia.—Twenty patients with myelocytic leukemia have been splenectomized at the Mayo Clinic. Eighteen patients were treated by means of radium exposures over the spleen prior to splenectomy. In each case the spleen was very much reduced in size and the general condition of the patient was very much improved as the result of radium treatment. The operative mortality for the entire group of twenty cases was one death, or 5 per cent. Nine patients have since died, from two months to one year and three months after operation. The total duration of history in eight of the nine fatal cases was from nine months to three years and six months. In seven of the eight it was more than two years. Seven patients were operated on early in the disease, that is, less than six months from the time of denfinite onset; six of these are alive, five are in excellent, or very good condition. In two cases of a chronic type the patients are alive ten months and one year and seven months, respectively, after splenectomy. In general, patients with the largest spleens at the time of operation have died first. Giffin infers that this probably indicates that these patients represented a more severe type of the disease. On the other hand, those with the smallest spleens at the time of operation have, in general, lived the longest.

A period of improvement in the patient's general condition followed operation in all cases save three. This general improvement consisted of a feeling of well-being, which may have been psychic, of an improvement in the appetite and the anemia, of a gain in weight, and a definite loss of the icteroid tint when it was present. Marked gain in weight was, however, almost a constant postoperative feature. The period of improvement was not of definite duration. The blood, after splenectomy, showed no definite alteration, with the exception of an increase in the relative percentages of both small and large "lymphocytes." A review of these cases reveals no evidence that the duration of the disease is altered in any definite way by splenectomy.

Michigan State Medical Journal, Grand Rapids

December, 1918, **17**, No. 12

96 A Fortnight in a Field Hospital. A. M. Campbell.—p. 457.
97 Résumé of Five Years of Butterworth Orthopedic Clinic. W. E. Blodgett.—p. 461.
98 Some Unsettled Points in Surgery of Thyroid. M. Ballin.—p. 463.

99 Diseases of Aorta. Analysis of Fifty-Four Cases. W. J. Wilson, Jr.—p. 468.
100 Brachial and Femoral Pressures in Aortic Insufficiency. W. F. Koch.—p. 474. Cystitis. W. Lenehan.—p. 475.
101 Improper Treatment of Abortion. J. E. Davis.—p. 478.
102 Eye in Relation to General Diseases. E. Welsh.—p. 480.
103 Case of Hemorrhage in Middle Ear. D. E. Welsh.—p. 482.
104 Case of Anthrax. W. T. Dodge.—p. 482.

Minnesota Medicine, St. Paul

December, 1918, **1.** No. 12

105 *Problem of Humidity Indoors. E. P. Lyon.—p. 445.
106 Pathology and Treatment of Osteomyelitis. A. R. Colvin.—p. 452.
107 *Surgical Treatment of Progressive Ulnar Paralysis. Report of Cases. A. W. Adson.—p. 455.
108 Clinical Aspect of Prostatic Hypertrophy. E. Z. Wanous.—p. 460.
109 The War and Afterward P. Butler.—p. 463.

105. **Problem of Humidity Indoors.**—Lyon discusses this question of humidity indoors very thoroughly, especially as it affects the heating of homes. He says that if he were to put a heating system into a small house (in Minnesota) in the present state of development of hygiene and of heating engineering, he would choose a hot air furnace. He would have no outside air flue, but rather a cold return flue from every room to the base of the furnace. He would look to this system to secure circulation, which is now recognized as a very important hygienic factor. He would trust to leakage for renewal. He would have double windows, expecting even with these to have ample oxygen for an ordinary family. He would supply moisture by a sufficient number of broad shallow pans just above the fire pot, the water level in these being automatically maintained by connection with the city water system. He would have a good psychrometer and see to it that the relative humidity was kept about 40 per cent. He would have a good thermometer and keep the temperature at 65 F., or not above 68 F., and, he would expect good health and comfort dividends on the outlay of money and trouble required to get these conditions.

107. **Surgical Treatment of Progressive Ulnar Paralysis.**—Adson reports three cases of operation on the ulnar nerve. The nerve was very much enlarged and presented one or more so-called "neuromas" (intraneural fibrous tissue). The enlargement was of the fusiform type with definite thickening and hardening of the nerve itself and the neuromas were quite definitely circumscribed, though more or less diffuse throughout the nerve tissue. The ulnar groove between the internal condyle and olecranon was very shallow, owing, in two cases which were end results of old fractures, to an overgrowth of bone from the olecranon. In one instance a very definite bony spur of the ulna was present, without a history of fracture. It appears that the diffuse thickening of the nerve is due to frequent or constant but very slight trauma, such as bruising, or to the stretching of the nerve over some of the bony prominences. Small hemorrhages in the perineurium and in the endoneurium result, causing inflammatory reactions and the deposit of scar tissue. As the scar tissue tends to contract, many of the fibers become strangulated and eventually are destroyed, resulting in a gradual and progressive atrophy of the ulnar nerve. The condition is characterized by: (a) sensory changes—paresthesias and anesthesias; and (b) atrophy of the muscles involved, with gradual increase of motor paralysis. The surgical treatment consists of transference and fixation of the nerve to a position internal to the inner condyle, with longitudinal splitting of the epineurium and perineurium, or the resection of neuromas followed by anastomosis.

New York Medical Journal, New York

Dec. 14, 1918, **108.** No. 24

110 Military Training as a Factor in Public Health. C. O. Linder.—p. 1017.
111 Psychanalysis. F. J. Farnell.—p. 1018.
112 Syphilis and Matrimony. E. Pisko.—p. 1021.
113 Renal and Ureteral Infection with Gonococcus. L. Buerger.—p. 1022.
114 *Plaster Splint Treatment for Compound Fracture of Long Bones. J. A. Miller.—p. 1028.
115 Yale's Medical Activities at Changsha, China. A. P. Wilder.—p. 1030.
116 Cellulitis of Upper Lid Due to Foreign Body. Report of Case. A. Rovinsky.—p. 1032.

114. **Plaster Splint Treatment for Compound Fracture of Long Bones.**—The method of procedure advocated by Miller is as follows: The wound in the limb is dressed, and the entire limb is bandaged with one thickness of flannel bandage. The limb is measured for the desired length of the splint, then a piece of flannel or muslin bandage, the required length, is moistened and stretched out on a smooth long table. Starting at one end of the piece of flannel, plaster bandages soaked in warm water are laid down on this flannel (or muslin) from left to right, and back from right to left until the entire bandage has been used, and another is now used, if necessary, until the desired thickness is obtained. The plaster splint is now made; it is soft and pliable and is put on the limb lengthwise, the limb being held in position. The splint is bandaged onto the limb by means of gauze bandage, being molded at same time. The second splint is now made and applied in the same manner. The limb is held in position by means of sand bags until the splints are dry, usually about fifteen minutes. For forearm, three such bandages are usually sufficient for both splints, made long enough to immobilize elbow, and going down well onto hand. About seven are necessary for the splints in cases of fracture of the tibia and fibula, immobilizing both knee and ankle.

Northwest Medicine, Seattle

November, 1918, **17.** No. 11

117 Operative Treatment of Head Injuries. Report of Case. G. A. Cathey.—p. 315.
118 Gonorrhea in Women. J. L. Courtright.—p. 318.

Public Health Journal, Toronto

November, 1918, **9.** No. 11

119 Broader Aspects of Venereal Disease Problem. G. Bates.—p. 497.
120 Public Health Nurse. J. A. Baudouin.—p. 506.
121 Integer Vitae. Moral Aspect of Sex Problem. J. H. Muirhead.—p. 522.
122 Vice and Venereal Disease in Montreal. C. W. Cavers.—p. 529.

South Carolina Medical Association Journal, Greenville

November, 1918, **14.** No. 11

123 Milk Treatment in Care of Certain Chronic Diseases. S. Brunson.—p. 280.
124 Tuberculosis of Kidney. S. W. Schapira.—p. 285.

Southwestern Medicine, El Paso

November, 1918, **2.** No. 11

125 Roentgen Diagnosis of Pathologic Conditions in Lumbosacral Spine. W. W. Watkins.—p. 1.
126 Influenza Pandemic. E. B. Rogers.—p. 6.

Tennessee State Medical Association Journal, Nashville.

November, 1918, **11.** No. 7

127 Medical Aspect of Dental Caries in Childhood. R. H. Perry.—p. 257.
128 Primary Infection of Mastoid. Report of Cases. O. Dulaney.—p. 264.
129 Seven Thousand Industrial Injuries. D. Eve, Jr.—p. 269.

Texas State Journal of Medicine, Fort Worth

November, 1918, **14.** No. 7

130 Roentgenology of Colitis. L. L. Jones.—p. 244.
131 *Use of Fascial Transplants in Repairing Abdominal Hernia. A. O. Singleton.—p. 248.
132 Purpura; Its Treatment. M. L. Graves.—p. 250.
133 "Chorio-Epithelioma." Report of Cases. H. R. Dudgeon.—p. 253.

131. **Fascial Transplants in Repairing Hernia.**—Singleton has used transplants from the fascia lata in twelve cases of inguinal and one case of postoperative ventral hernia. These were extremely severe hernias, having very large rings, with a deficient amount of muscle and material for buttressing, and in which successful repair by any of the usual methods was doubtful. Four of these cases were recurrent hernias; two were complicated by the intestine sliding into the sac. The other cases presented either the direct type or the type of very large rings with a deficiency of the conjoined tendon. In the case of the very large postoperative ventral hernia the muscles could not be brought together and the fascia was successfully transplanted with a perfect result in the way of repairing the defect. Singleton is firmly of the opinion that this is an advantageous procedure and that it should be used

more frequently in certain cases of *inguinal* abdominal hernia and especially where it is found necessary to use foreign materials, such as the filigree wire to repair defects in the abdominal wall.

West Virginia Medical Journal, Huntington

November, 1918, **12**, No. 5

134 The Feeble-Minded With Special *Reference to Juvenile* Delinquency and Venereal Diseases. L. V. Guthrie.—*p.* 161.
135 Cesarean Section. G. W. Dobbin.—*p. 166.*
136 Intragastric Diagnosis. M. E. Rehfuss.—p. 171.

FOREIGN

Titles marked with *an asterisk* (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

Oct. 31, 1918, **12**, No. 2

1 *Epidemic of "Central Neuritis." H. H. Scott.—p. 109.
2 *Treatment of Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. F. Carter.—p 197, and 201.
3 *Id. Intravenous Injections of Neo-Arsphenamin in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. E. Cooper and H. F. Carter.—p. 211
4 *Id.: Quinotoxin for Two Consecutive Days in *Simple Tertian* Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. F. Carter.—p. 217.
5 *Quinine in Animal Tissues. Methods for Its Estimation. W. Ramsden, I. J. Lipkin and E. Whitley.—p. 223.

1. **Epidemic of "Central Neuritis.**—Scott analyzes a certain epidemic which broke out in the earlier months of 1917 among the laborers on a sugar estate in Jamaica. The onset in each case was sudden, the patients being attacked while at work and apparently in good health. The initial symptoms in all cases were conjunctivitis and stomatitis. Thereafter the patients could readily be divided into two categories: (1) with intestinal symptoms; (2) with nervous symptoms. The diet of those affected consisted exclusively, or almost exclusively, of sugar cane. The cane tops, which are cut or broken off, are covered with small hairs which are very irritating and may have set up the original conjunctivitis and stomatitis, and, when swallowed, the subsequent diarrhea. Fresh cases ceased with the cessation of the crop or almost immediately after.

No case with early diarrhea exhibited any affection of the nervous system. In nervous system cases the patients were always constipated until the final two or three days before death. Wassermann reactions with both the blood serum and the cerebrospinal fluid were invariably negative. Blood examinations revealed very little abnormality as regards total counts; differential leukocyte counts showed in all cases a marked relative lymphocytosis. Arneth index was very different from what is found normally in natives in the tropics.

The morbid anatomy of the nervous cases is typical of a "central neuritis." Scott sees no reason for thinking that the disease is pellagral in nature, or that it has any relation to pellagra. There is no reason for regarding it as beriberi. There are many contraindications to the condition being a new form of "deficiency disease." There is every reason for considering these cases as representing the acute form, or acute stage, of what has for many years been erroneously spoken of as "peripheral neuritis" in Jamaica. There is no positive evidence that the disease is microbial in origin, at least not a bacteriemia. All the signs and symptoms tend to its being a condition of "intoxication."

2. **Treatment of Malaria.**—Forty-nine men received quinin bihydrochlorid by intramuscular injection, 15 grains, simultaneously into each deltoid, with 10 grains, orally, or hydrochlorid thrice daily, totaling 60 grains daily, for 12 days. Of these 5 relapsed (10 per cent.). Relapses occurred in an average of 34 days (extremes sixteen to seventy-two days). This is known officially as the Aldershot C 17 treatment. Many of these men had been given daily doses of quinin (generally only 5 grains) after they had been discharged from the special malaria wards. The authors suggest that the low proportion of relapses may partly be due to this continued medication. A second series of thirty cases were subjected to the treatment. In twenty-six a parasitic relapse occurred in eight to fifty-six days, average eighteen days. In four cases there was no parasitic relapse within an observation period of sixty-seven to 100 days.

The authors believe that the season at which treatment for malaria is given influences the results obtained. The same treatment if carried out on different occasions may give quite dissimilar results. Broadly speaking, a very small percentage of cures is obtained in the winter and spring and a comparatively high percentage in the summer and autumn.

3. **Id.: Intravenous Injections of Neo-Arsphenamin.**—The authors found that single intravenous injections of neo-arsphenamin in doses of from 0.45 to 0.9 gm. control the febrile paroxysms and cause the disappearance of parasites from the cutaneous blood, as a rule within one day, in simple tertian malaria. Parasitic relapses occur, on an average, in twenty-one days. The curative effect of a single inpection of the drug in the doses used is practically nil.

4. **Quinotoxin Treatment of Malaria.**—A dose corresponding to 5 grains of quinotoxin hydrochlorid was given orally to five patients and 10 grains to four patients on each of two consecutive days. The drug had practically no action on the parasites or the fever, and so is inferior in its action to similar doses of quinin sulphate in simple tertian malaria.

5. **Estimating Quinin in Animal Tissues.**—Delicate methods are described by the authors for the estimation and detection of quinin in animal tissues and liquids. They found that quinin does not normally suffer change in putrifying urine or feces and that quinin introduced into an animal in large doses accumulates in most of the tissues at very much higher concentrations than in the blood. Of the quinin present in the blood, more than three fourths is in the serum (plasma?). Normal red corpuscles take up very little quinin. After intraperitoneal injections the suprarenal glands take up quinin at much higher concentration than any other tissue examined; the kidneys probably come next in the series. The healthy human kidney excretes quinin at much higher concentration than that at which it is present in the contemporaneous blood. During an attack of blackwater fever it appears to lose this power. The liver of rabbits, guinea-pigs and oxen rapidly attacks quinin postmortem and presumably during life. The properties of the active agent suggest that it is an enzyme. The product or products presumably represent normal metabolites of quinin in the living body.

Experiments directed to ascertain whether quinotoxin is a normal metabolite have shown that (*a*) it is attacked by liver extracts; (*b*) when ingested by mouth it produces alimentary disturbances, but some is absorbed and some at least is excreted unchanged in urine; (*c*) any antimalarial action which it may exert is so slight in comparison with that of quinin as to be negligible. A given dose of quinin gives rise in different men to very different amounts of quinin in the blood. The excretion period of quinin by the urine differs greatly in different men—ranging from forty-one hours (after a single dose by mouth) to seven and a half days (after the last of a succession of large doses). About 90 per cent. of the quinin injected intravenously disappears from the blood within one minute. There is a striking association between symptoms of quinin intoxication and high concentrations of quinin in the blood. When quinin is administered in a succession of large doses, an abnormally large proportion (from 90 to 93 per cent. of that ingested) is metabolized. Quinin may fail to effect a radical cure of malaria even when it has reached, and maintained for some time, a concentration in the blood so high as to be barely tolerable to the patient.

British Medical Journal, London

Nov. 23, 1918, **2**, No. 3021

6 Epidemiology of Influenza. M. Greenwood.—p. 563.
7 Influenza Epidemic at Bramshott in September-October, 1918. C. E. C. Cole.—p. 566.
8 Isolation and Cultivation of Anaerobic Bacteria. W. J. Wilson. —p. 568.
9 Femoral Artery in War Surgery. J. H. Nicoll.—p. 569.
10 *Curse of Immobilization. J. W. Dowden.—p. 570.
11 Variations in Activity of Ciliary Muscles. G. F. Alexander.—p. 571.
12 *Blood Pressure in Pulmonary Tuberculosis. R. J. Cyriax.—p. 572.

10. **Curse of Immobilization.**—Dowden is of the opinion that thousands of soldiers have been more or less disabled for life simply and solely on account of prolonged immobilization of injured limbs. He emphasizes the following four points: Nature is the most wonderful surgeon, especially when encouraged; septic wounds should be thoroughly drained; from the very beginning frequent passive and active movements should be carried out, steadily increasing the range; splints should never be used except when absolutely necessary, and then only for as short a time as possible, and should never interfere with passive and active movements. Massage time, a concentration in the blood so high as to be barely is a most excellent adjunct—the best—to active movement. Dowden lays little stress on the value of electricity or baths. When passive or active movements are begun early, pain is the danger signal that shows harm is being done, and the movements should be modified temporarily. When after prolonged immobilization adhesions have formed, however, pain has to be endured while the adhesions are being stretched or broken. Injuries to joints, even though septic, are not a bar to movement; the joints should be moved gently and encouraged, short of pain. For the last twelve years, Dowden has treated all fractures of the scapula, clavicle, humerus, and many of the forearm, without splints. Every movement of all joints and muscles is encouraged, first of all passively and as soon as possible actively, and this should be carried out frequently during the day. By the time the fracture has consolidated, all the movements of the joints are perfect, provided the damage has not been too great.

12. **Blood Pressure in Pulmonary Tuberculosis.**—Nineteen patients were examined by Cyriax as to blood pressure. The pressure in the two arms is by no means invariably the same. Five patients, all males, were confined to bed, except where otherwise stated. Tubercle bacilli have been found in all their sputa. In two cases differences of more than 5 mm. in the systolic pressures were not found; two observations were made on each patient at intervals of some days. Both had lesions in both lungs. In the remaining fourteen cases, not confined to bed, differences in the systolic pressure of more than 5 mm. were found in six. All six are cases of bilateral disease; tubercle bacilli have been found in the sputum. The differences amounted, in the male patients, to 7, 8 and 13 mm., respectively; in the female patients to 14, 8 and 10 mm. The systolic pressure in the arm appears to be lower, as a general rule, on the diseased side in a unilateral, on the most diseased or most active side in a bilateral lesion. Further investigations are in progress.

Dublin Journal of Medical Science

Oct. 1, 1918, **146**, No. 562

13 Amylolytic Properties of Urine and Significance of Variations in Health and Disease. W. R. Fearon.—p. 149.

Glasgow Medical Journal

November, 1918, **90**, No. 5

14 *Treatment* of Mal-Positions and Mal-Presentations. R. Jardine. —p. 257.
15 New Antisepsis in Surgery. J. MacIntyre.—p. 265.
16 *Treatment of Acute* Gonorrheal Epididymitis by Normal Horse Serum. R. A. Brown.—p. 280.

Lancet, London

Nov. 23, 1918, **2**, No. 21

17 Epidemic Catarrhs and Influenza. A. Newsholme.—p. 689.
18 *Treatment of Influenza. T. Horder.—p. 694.*
19 Incidence of Influenza (Pfeiffer) in Present Influenza Epidemic. J. McIntosh.—p. 695.
20 Pathology of Present Influenza Epidemic. P. Fildes, S. L. Baker, and W. R. Thompson.—p. 697.
21 *Cases of Malignant Disease of Upper Extremity. J. W. Geary Grant.—p. 700.
22 *Ergoestesiograph:* Apparatus for Graphical Representation of Muscular Aptitude of Candidates for Aviation. G. Galeotti. —p. 702.
23 Neurasthenic and *Hysterical* Cases in General Military Hospitals. R. H. Trotter.—p. 703.

21. **Malignant Disease of Upper Extremity.**—One of the cases cited by Grant, one in which several limited operations had been performed for an epithelioma of the hand, where ultimately the disease had extensively involved the axillary glands and lymphatic vessels, demonstrates the advantages which Berger's operation gives in sweeping away, without a difficult, tedious, and possibly incomplete dissection of the axilla, all possibly infected tissues. The second case was one of very extensive carcinomatous ulcer arising in the scar of a large burn involving the greater part of the skin of the right upper arm. The third case was one of a round-cell sarcoma of the scapula.

Medical Journal of Australia, Sydney

*Nov. 2, 1918, **2**. No. 18*

24 Hospital of the Future in Australia. R. Arthur.—p. 363.
25 Eyes and Ears of Soldiers in Egypt. L. J. C. Mitchell.—p. 365.
26 Two Cases of *Small* Upper *Abdominal* Tumor. Omentum Adherent to a Leaking Malignant Ulcer of Stomach. Torsion of Omentum, Adherent to Healthy Stomach. G. A. Syme.—p. 368.

Bulletin de l'Académie de Médecine, Paris

Nov. 5, 1918, **80**, No. 44

27 *Decortication of the Lung. E. *Delorme.—p. 401.*
28 *Pathologic Histology of Lethargic Encephalitis. G. Marinesco. —p. *411.*
29 *Creosote *in* Treatment of Influenza. L. Weiller.—p. 418.

27. **Decortication of Lung.**—Delorme coined this term some years ago to express the releasing of the lung by peeling off the thick, stiff shell of false membranes crowding on it. It has proved particularly useful for the sequels of war wounds of the chest, especially when the decortication is done without further delay as soon as the lung is found incapable of returning to contact with the wall even after a course of respiratory exercises. In forty-nine cases of chronic empyema from a war wound, compiled from the experience of four British and French surgeons, there was no fatality for which the decortication could be incriminated, and the results were reported as highly gratifying. The decortication was an extremely mild and simple procedure when the empyema was "cold" and the general condition good. The decortication promises equal success with chronic pleurisy consecutive to influenza. Radioscopy readily shows the encapsulating shell.

28. **Lethargic Encephalitis.**—Marinesco reports the pathologic histologic findings in lethargic encephalitis as an inflammatory polioencephalitis, and suggests treatment by injecting convalescents' serum into the arachnoid cavity.

29. See Paris Letter, Dec 14, 1918, p. 2010.

Paris Médical

Oct. 12, 1918, **8**, No. 41

30 **Ocular Symptoms with Skull* Wounds. F. Terrien.—**p. 277.**
31 Evaluation of Disability. J. Amar.—p. *278.*
32 **Chronic Appendicitis Simulating Pulmonary* Tuberculosis. Schoull. —p. 279.
33 Primary Autochthonous Malaria in *France.* G. Rosenthal.—p. 287.
34 *Hypochlorite Treatment of Vincent's Angina. Lagarde.—p. 289.
35 Paroxysmal Dyspnea with *Incipient Miliary* Tuberculosis. Uhry. —p. 291.

Nov. 16, *1918*, **8**, No. 46. Influenza Number

36 *Influenza *in* 1918. P. Lereboullet.—p. *374.*
37 *Azotemia in Influenza. A. Gilbert, E. *Chabrol and* J. Dumont —p. *378.*
38 *Influenza in 1918. A. Netter.—p. 382; L. Rénon and R. Mignot. —p. 387; P. Ravaut and *others.*—p. 390.
39 Bacteriology of the Complications of Influenza. C. Richet, Jr., and A. Barbier.—p. 397.
40 **Treatment of Influenza.* P. Lereboullet.—p. 399.
41 *Spirochetes in Influenza. Maclaud, Ronchèse and Lantenois. —p. 404.

30. **The Eye Symptoms with Skull Wounds.**—Terrien calls attention to the diagnostic importance of three symptoms which reveal hypertension and which may give the clue to the trouble in certain cases. The triad includes diplopia, restriction of the visual field, and choked disk. They subside after lumbar puncture as the hypertension is relieved, but if this is not done, irreparable damage may result. They explain the transient visual disturbances sometimes observed long after trephining, and they may reveal some brain lesion which had previously escaped detection. The symptoms seem to occur more frequently when the trephining opening was small, and they emphasize the necessity for caution in closing gaps in the skull with metal plates or cartilage.

32. **Appendicitis Simulating Pulmonary Tuberculosis.**—Schoull reports some cases in which râles, congestion in the apexes, and other symptoms of pulmonary tuberculosis fluctuated with exacerbations of chronic appendicitis, and disappeared completely after appendicectomy. The pathologic condition of the appendix was discovered accidentally at an ovarian operation in one case. In three of the cases, consultants did not accept his diagnosis until two of the apparently doomed patients regained their health after the appendicectomy. The third still rejects an operation. Schoull regards the pulmonary disturbances as a *kind of metastatic congestion.* Fever not over 38 C. keeping up for several months or years points to some other cause than pulmonary tuberculosis. It suggests appendicitis *in adults and also in children* if adenoiditis can be excluded. An "abdominal past" is also instructive.

34. **Hypochlorite Treatment of Ulceromembranous Angina.**—Lagarde states that neutral solution of chlorinated soda promptly cured twelve rebellious cases of Vincent's angina. *After the mouth* had been rinsed twice and the throat gargled several times the first day, the relief and improvement were pronounced, and no further spirilla or spindle-shaped bacilli could be discovered by the end of the second day. Dakin's solution in these cases exerts an unmistakable detersive, bactericidal and phagocytic action, so that the general health rapidly recuperates.

36. **Influenza.**—Lereboullet summarizes the present status of our knowledge on influenza and reiterates that the predisposition for other infections which influenza entails renders individual isolation exceptionally *important.*

37. **Azotemia in Influenza.**—The azotemia is of moderate degree but it is remarkably frequent, even in the young on a fluid diet.

38. **Influenza.**—Rénon and Mignot remark *in this review* of the present status of influenza that it has benefited much by the progress in hygiene realized since 1890. In five days *recently*, Bar had 19 develop influenza out of 79 inmates of the Tarnier maternity as also 14 of the 54 nurses and 4 of the infants. Then masks of three or four layers of gauze were *worn by* all and no further cases developed.

38. **Treatment of Influenza.**—Ravaut remarks that the symptoms on the part of the lungs are comparatively mild in the hypertoxic *form of influenza, and a fixation* abscess, tonics for the heart, and epinephrin seem to be indicated, with possibly hexamethylenamin. In one case antipneumococcus serum on four successive days seemed to be unmistakably responsible for the recovery. In other cases the benefit was less apparent. In the cases with edema of the lung, the interference with the local circulation calls for abundant and repeated bloodletting, and nothing must be given to increase the blood pressure, as long as the circulation in the lungs is blocked by the hemorrhagic-serous *fluid. Perhaps one reason why the young* and vigorous become asphyxiated quicker is because their heart keeps working so forcibly. Withdrawal of 500 or 700 gm. of blood may relieve at once, and the earlier this is done the better. Every minute's delay sees more blood oozing into the interstices of the lung tissue, and the circulation grows more and more difficult. The lungs were found gorged *with* coagulated blood in one case in which venesection had been deferred too long, and blood poured from the chest even after death. Many patients were undoubtedly saved by withdrawal of 500 gm. of blood on four successive days. Prompt venesection certainly warded off acute pulmonary edema *in many* cases. The main point *is to apply* it in time *and* without hesitation. When there was albuminuria, hexamethylenamin was found a useful adjuvant. Comparison of the blood of patients treated with and without venesection showed that the resulting anemia was no more intense than in the disease left to its own course. It is not dangerous, while it is the one chance of salvation when it is really needed. An intravenous injection of from 2 to 6 c.c. of a solution of 1 gm. iodin and 2 gm. potassium iodid in 100 gm. of water was given to many of the patients, and in his 1,000 injections of the fluid he never saw any signs of intolerance or injurious action in any way. The temperature often dropped afterward but rose again later to drop anew at the injection the next day. In three exceptionally severe cases the recovery seemed to be due to these injections alone. Some of the patients with *pulmonary complications* were given ten or twelve of these injections, and sometimes with highly appreciable results.

40. **Treatment of Influenza.**—Lereboullet reiterates that the first and main thing is individual isolation of the patient. Even in a mild case, he should stay in bed from the very first and eat little, *only fluid food* if there is much fever, but drink copiously of water and lightly alcoholized drinks. Meat, eggs and bread should not be given until two or three days after complete apyrexia. *He warns against the* abuse of purges at the start. In grave forms, with very low blood pressure, epinephrin may be useful. He gives 10 or 15 drops by the mouth two or three *times. Given* by subcutaneous injection, it is liable to cause severe disturbance in these cases. The heart may have to be reenforced with camphorated oil, or strychnin or both. Caffein is liable *to bring on delirium.* Wet packs of the chest, at 25 C., changed three or four times a day, have rendered good service. With a tendency to pulmonary edema, venesection *must* be *abundant* and repeated, otherwise wet cupping may suffice. His experience *with* serotherapy was limited, but the results were promising. Drugs that have a depressant action should be carefully avoided, including purgatives, but he advocates *moderate* doses of *quinin,* for its tonic action, 0.25 gm. for example, morning and evening.

41. **Is Influenza a Spirochetosis?**—In eight of twelve influenza cases examined, spirochetes were cultivated from the urine. The spirochete resembled that described *in an official* circular in 1917 as not inducing hemorrhagic jaundice and not pathogenic for guinea-pigs.

Presse Médicale, Paris

Nov. 14, 1918, **26,** *No. 63*

42 *Intravenous Injections After Hemorrhage. C. Richet, P. Brodin and F. Saint-Girons.—p. 581.
43 Technic for Direct Transfusion of Blood. Rhéaume.—*p.* 582.
44 *Electric Sterilization of Wounds. M. Parin.—p. 583.
45 **Injury of Peripheral or Sympathetic Nerves. E. Girou.—p. 584.*

Nov. 21, 1918, **26,** *No. 64*

46 **Action of Organ Extracts and Autolysates.* H. Roger.—p. 589.
47 Injury of Posterior Retroparotid Space. M. Villaret and M. Faure-*Beaulieu.—p. 591.*
48 Tuberculosis in Infants. R. Raimondi.—p. 593.

42. **Physiologic Solutions by the Vein After Hemorrhage.**—Animals more or less exsanguinated were given *intravenous* injections of different "artificial serums," in the research described. The most effectual was a solution of 7 per thousand sodium chlorid plus 5 per thousand lactose or glucose. With this it was possible to keep alive a dog that had been repeatedly bled until he had no more than 21 per cent. of his red corpuscles, and even *continue the hemorrhages* until he had only 5 or even 3 per cent. of his reds. Addition of gum acacia did not seem to offer any advantages over this salt-sugar serum. In large *proportions,* the gum acacia exerted a toxic action, as also sodium bicarbonate in any strength for these hemorrhage animals. The artificial serums were unable to ensure durable survival of the much exsanguinated animal, but direct transfusion of citrated blood permitted this. Complete restoration was the rule, showing that the nerve centers had not suffered from the loss of blood. The practical conclusion is that in case of severe hemorrhage, infusion of the salt-sugar solution will restore the *mass of* the circulating fluid and tide the exsanguinated along until he can be given a transfusion of blood. Only this latter will save in desperate cases.

44. **Sterilization of Wounds by Electro-Ionization.**—Parin relates that a single application of electric ionization with zinc sulphate promises to completely sterilize a war wound. His experience, he says, has been satisfactory in the fifteen cases in which he applied this method. In two of the cases streptococci were unusually numerous and the *sterilization* was not *complete;* possibly some other metal might be more destructive than zinc for the streptococcus. Friel is the only one that has applied this ionization method in sterilization, so far as Parin knows. Friel reported in 1917 his success with it in treatment of suppuration in the middle ear and the

maxillary and frontal sinuses, and since then has been using it for war wounds.

45. **Pain of Sympathetic Origin.**—Girou means by this, pain in the sympathetic nervous system in distinction to pain for which peripheral nerves are responsible. Lesions of the latter are manifested by paralysis, impotence and pains; lesions in the sympathetic system are manifested by contracture, circulatory and trophic disturbances and pains, but the pain is not so intense as in the other group. He has operated in many cases of causalgia and contracture and has found this distinction constant and pronounced. With causalgia of the Weir Mitchell type the median or popliteal nerve was always found injured, never the sympathetic nerve. The nerve seemed pathologic over a stretch of up to 10 cm. and the D. R. was generally complete. The lesion was too extensive for any direct intervention, and all that could be done was to arrest the conduction of the pain to the centers of consciousness. Sicard accomplishes this by blocking the nerve with intraneural injection of alcohol at 60 degrees. Girou obtained the same result by ligating the nerve with No. 2 catgut, drawn moderately tight. The ligature has to be made at a point on the median nerve above the sympathetic fibers reaching it from the sheath of the humeral. Ligation lower down would irritate these fibers and induce contracture. The ligature induces violent pain for an hour unless a little morphin is injected at the close of the operation. He has been treating causalgia in this way for three years. With flexion contracture of the hand, he invariably found the periarterial sympathetic sheath injured, showing the effect of some surgical ligature, or being bound down by cicatricial tissue. This hampers the circulation in addition to the direct injury of the sympathetic nerve fibers. These are the cases that benefit by cutting off the network of sympathetic fibers ensheathing the artery, that is, Leriche's method of periarterial sympathectomy. The two kinds of pain may be associated, causalgia and the sympathetic irritation pain, so that both the median nerve (the one usually involved) and the sympathetic may require treatment. In conclusion he warns that in ligating an artery, the sheath should not be ligated with it. Those who, like himself, have witnessed contracture develop after ligating the humeral artery, will appreciate the necessity for this precaution.

46. **Action of Autolysates.**—This is the opening lecture of the course on experimental and comparative pathology. Personal experimental research is described which shows, among other things, that the products generated in cells that have lost their vitality may have a pronounced effect on certain body functions. For example, with cirrhosis of the liver the cells die off, that is, they undergo autolysis, and the autolysates resulting pass into the circulation and by their toxic action check production of urine. On the other hand, with cirrhosis of the kidney or interstitial nephritis, the diuresis is increased, for the autolysates from kidney tissue do not have the property of reducing the secretion of urine but rather tend to increase it. The edema of the legs with the ascites of cirrhosis of the liver is explained by the insufficiency of the kidneys resulting from the toxic action of the liver autolysates. The edema may precede the ascites and is not a consequence of it. Further research is necessary on the effect of autolysates from partially devitalized organs left in the body. The kidney is the organ best adapted for such experimental work. For instance, if the vascular pedicle of the kidney is ligated and the circulation interrupted for seven or eight hours and then restored, a rise in blood pressure follows and the cardiac systole is reenforced. This experiment reproduces what must occur in the course of pathologic autolysis, and explains the mechanism of the two most important manifestations of interstitial nephritis, namely, the hypertension and the hypersystole.

Progrès Médical, Paris

Oct. 19, 1918, **33**, No. 42

49 *Plastic Motor Orthopedic Surgery. A. Bernard.—p. 353.
50 Chart for Roentgen Examination of Stomach. Dubois-Roquebert.—p. 356.

Oct. 26, 1918, **33**, No. 43

51 Foreign Bodies in Esophagus. Bichaton and R. Rendu.—p. 361.
52 *Mania from Otitis; Recovery. H. Damaye.—p. 362.

49. **Plastic Motor Surgery.**—Bernard is enthusiastic over the promise of what he calls *orthopédie cinéplastique*. Although the experiences are not very numerous, the results speak so eloquently, he declares, that this method of plastic motor surgery ranks among the greatest discoveries of orthopedic surgery. It should be accepted with entire confidence and be applied on a large scale in order to restore the functional use of limbs to the maimed. From the physiologic point of view, the plastic motors are capable of doing at the same time the same kind and the sum total of the work of the masses of muscles which they replace. The amount accomplished does not reach its maximum unless the prosthesis is perfectly adapted to the shape and force of the plastic motor. To realize this vitalization of the prosthesis, the surgeon and the mechanical orthopedist must work together in order to solve in a satisfactory manner this difficult problem of such immense social interest. Bernard reviews the literature and gives illustrations of different technics, but does not speak of any personal experience with the method.

52. **Mania with Otitis.**—Damaye's patient was a military telephone operator and he suddenly developed subacute mania in the course of a staphylococcus double otitis media. Both persisted for nearly two months when they gradually subsided and by the end of the month normal conditions were restored. The mania was the first symptom that called attention to the otitis. A mastoid operation became necessary, and after this gradual recovery followed under a silver salt, raw meat, cacodylate and iodin. The mania was of the stereotype form with confusion.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 9, 1918, **48**, No. 45

53 *Immune Substances in Treatment of Tuberculosis. H. Wassitsch and C. Spengler.—p. 1489.
54 The Deycke-Much Partial Antigens. F. Oeri.—p. 1498.
55 *Neo-Arsphenamin in Treatment of Anthrax. J. L. Gsell.—p. 1505.

53. **Immune Substances in Treatment of Tuberculosis.**—This communication from Spengler's Institute at Davos reports the application of his I K method of treatment in 484 cases. The results are said to surpass those obtained by any other treatment and in a shorter time. The bacilli disappeared from the sputum in twice the proportion realized in similar groups in other sanitariums at Davos.

55. **Neo-Arsphenamin in Anthrax.**—The case reported can be classed with those published by Becker, Bettman and others in which intravenous injection of neo-arsphenamin arrested severe anthrax. A total of 0.75 gm. was injected in two days, and improvement was evident at once.

Policlinico, Rome

October, 1918, **25**, Surgical Section No. 10

56 *Albee's Operation in Pott's Disease. D. Maragliano.—p. 289. Conclusion.
57 Foreign Body in Esophagus Perforates Mediastinal Artery. G. Massa.—p. 305.
58 Putrid Infection of Wounds. L. Fioravanti.—p. 313. To be cont'd.

56. **Albee's Operation for Pott's Disease.**—Maragliano's impressions are decidedly favorable for this operation, provided too much is not expected of it. He gives the details of his thirty-four cases, and says that the poverty of the families explains the small percentage of durable successes. There should be five or six months of horizontal reclining, and the corset should be worn for at least another six months. These conditions could not be realized in all his cases.

Riforma Medica, Naples

Oct. 12, 1918, **34**, No. 41

59 Three-Day Fever. U. Gabbi.—p. 806.
60 *Color Reaction in Typhoid. E. De Silvestri.—p. 812.
61 Serums and Vaccines in Eye Infections. G. Molinari.—p. 820.
62 The Mortality from Tuberculosis in Italy. A. Botti.—p. 825.

Oct. 19, 1918, **34**, No. 42

63 Case of Grave Myasthenia. Cardarelli.—p. 830.
64 *Projectile Free in Right Ventricle. M. Ponzio.—p. 834.
65 *The Febrile Pandemic. C. Minerbi.—p. 836.

Oct. 26, 1918, **34**, No. 43

66 Influenza. A. Marrassini and L. Merelli.—p. 850.
67 *Tests to Study Changes in Motor Functions. C. Besta.—p. 852.

68 *Referendum in Febrile Pandemic. N. Pane and others.—p. 855.
69 Induced Pneumothorax for Wounds and Effusions in Chest. E. Aievoli.—p. 859.
70 Biology of the Pneumococcus. A. Ferrannini.—p. 862.

60. **Color Reaction in Typhoid Urine.**—De Silvestri calls attention anew to this very early and constant reaction in typhoid urine, and gives some cases in which the findings of this test were all that testified against typhoid until the course of the cases confirmed its evidence. He discovered the reaction in studying the phenols in the urine, and several years' experience has confirmed its reliability. He would like to have those who apply this test inform him of their experiences with it. His address is E. de Silvestri, Via Principe Amedeo 29, Turin, Italy. The test is the color reaction when 3 c.c. of filtered urine is cautiously added from a pipet to a mixture of 2 c.c. of ferric chlorid and 4 or 5 drops of pure sulphuric acid. At the zone of contact between the reagent and the urine, a brownish yellow tint appears and spreads upward. A ring of turbidity, with greenish reflections, forms on the surface of the urine, but this disappears on agitating the test tube. The brownish yellow, or chestnut tint, however, shows no change on agitating or heating the fluid. The reaction occurs without heating. If there is precipitation of urates and albumin, it is better to repeat the test with urine freed from them. This reaction is positive in the first days of typhoid and paratyphoid B and, although less pronounced, in paratyphoid A.

64. **Shrapnel Ball Free in Right Ventricle.**—The projectile had entered tangentially to the iliac crest and lodged in the wall of a large vein. It dropped in time into the lumen of the vein. Symptoms on the part of the heart marked its passage through the right auricle, but after it reached the ventricle it has apparently caused no further disturbances during the year to date.

65. **The Febrile Pandemic.**—Minerbi emphasizes certain points in which the present epidemic in its incidence at Ferrara seems to differ from influenza, especially the sparing of the well-to-do; the fact that the congestion in the nose and accessory cavities is brief and fleeting; the pneumonia is lobular, instead of lobar, while the glands in the neck and carotid sulcus are not palpable, contrary to what occurs from the first in influenza. Those who abstain from salicylates and other drugs seem to get along better.

67. **Tests for Changes in Motor Functions.**—Besta is professor of nervous and mental diseases at the University of Messina, and he here describes a series of tests which reveal impairment of the sense of direction, like Bárány's finger-touching test. He shows that a lesion in the parietal lobe may give findings simulating those with a cerebellar lesion under certain conditions. He has worked out a number of other tests, besides Bárány's, in which various groups of muscles are called on, as he describes in detail with their interpretation, movements of the neck, trunk, and limbs. The value of these tests in neurologic examination after skull wounds is emphasized. They constitute, he says, "unless I am mistaken, a completely new chapter of the physiopathology of the cerebral cortex." For example, if the arms are raised vertically and, with the eyes bandaged, the trunk is twisted around and then back to place, the trunk is left at more or less of an angle to its primal position in certain pathologic conditions. The legs behave differently in this test on the sound and affected side. Walking along a straight line, back and forth, for 30 or 40 feet and then continuing with eyes bandaged reveals in pronounced form the tendency to deviate to right or left.

68. **The Febrile Pandemic.**—In these further contributions to the referendum, Pane, Liverato, Sclavo and Ascoli contribute their experiences. The latter remarks that certain circumstances suggest the possibility of an immunity and hence of specific vaccination. Copious drinking of fluids and sugar solution by proctoclysis were his main reliance. In the plethoric and the asphyxiated, he drew 500 c.c. of blood. He also speaks rather favorably of addition of a silver salt to the proctoclysis fluid. In addition to the Italian referendum running through several numbers, a full review is given in each number of publications on the subject in other countries, but the *Riforma* does not commit itself to a diagnosis, merely calling it the febrile pandemic. The medical senators, Cardarelli, Bozzolo, Micheli and Senise describe their experiences as chiefs of medical clinics. Bozzolo uses a mask that is held with wire far enough from the mouth to keep it from getting moistened. Against the pneumococci in the mouth, he advises a weak solution of ethyl-hydrocuprein (optochin) with a little thymol. Antipneumococcus and antistreptococcus serum have been used to advantage, as also convalescent's serum, but he has formed no definite judgment as yet. The young are mainly affected in his district (Turin). Micheli's impressions are favorable as to the benefit from early injection of antistreptococcus serum. Possibly it serves only as a heteroprotein therapy.

Rivista Critica di Clinica Medica, Florence

Sept. 21, 1819, **19**, No. 38

71 *Jacksonian Epilepsy. F. Schupfer.—p. 445. Concluded in No. 39, p. 457.
72 Tonus and Hyperexcitability of Vagus-Sympathetic System. L. Siciliano.—p. 448.

71. **Jacksonian Epilepsy.**—Schupfer's patient is a boy of 14 who has been having jacksonian epilepsy for two or three years, the focus being probably at the foot of the second right frontal convolution. Analysis of the features of the case suggests a gliomatous tumor in this region although trephining in the rolandic region brought such relief that there have been no symptoms since. The diagnosis was sustained by the negative findings in the rolandic region.

Archivos Españoles del Aparato Digestivo, Madrid

October, 1918, **1**, No. 10

73 The Hypotheses of Energy. (Bioenergética y termoquímica alimenticia.) R. y Abaytúa.—p. 433.
74 *Partial Colectomy. L. Urrutia.—p. 451.

74. **Partial Colectomy.**—It is almost impossible to differentiate between a tuberculous and a malignant process in the colon, but this is immaterial, Urrutia remarks, as partial colectomy is required for both, unless the lungs or small intestine are too much involved. The zone of lymphatics has to be thoroughly removed in either case. An inoperable tuberculous process may improve to such an extent under exclusion and heliotherapy that in a few months the process can be resected, or it may heal completely. In one of his cases all the disturbances vanished completely in a few months after unilateral exclusion with ileotransversostomy, and the large tumor could be no longer palpated. The lymph glands below as well as those above should be removed with a carcinoma of the cecum or appendix, and he advises the same even with a purely tuberculous process, as exact differentiation is so difficult and there is always danger of secondary malignant degeneration. He makes a point of extensive resection even although in some of his cases excellent functional results were obtained with economical resection. Side-to-side anastomosis with the Murphy button, by Pauchet's aseptic technic, is by far the preferable technic, he declares. The whole operation can be done without changing gloves. He knows of two cases with no signs of recurrence eleven and seventeen years after a radical operation for cancer of the cecum. The arrangement of lymphatics of the colon, in comparison to those of the small intestine, explains why malignant disease of the colon is so much less liable to spreading and metastasis than with cancer of the small intestine.

Archivos Españoles de Pediatria, Madrid

August, 1918, **2**, No. 10

75 *Adenitis of Dental Origin. Landete.—p. 449.
76 Albumin Milk in Infant. Feeding. A. R. Lozano.—p. 472.

75. **Adenitis of Dental Origin.**—Landete is professor in the dental school. He gives an illustrated description of the relations between the glands in the face and neck and the teeth, tracing the development of infectious processes in connection with different teeth, especially in children. The differential diagnosis is discussed, and the advantages of vaccine therapy are extolled when the adenitis is once established. If the effect of the vaccine in a few hours is slight or transient, this warns of the presence of pus which must be cleared out of the way before the vaccine can exert its

efficacy. The focus must be drained continuously. He prefers for this a loop of fine copper wire, such as is used for electric light, the outer ends turned back, and the whole held in place with a strip of gauze. This little loop can be inserted and removed without inconvenience through a minute incision. He prescribes flushing with an antiseptic unless the cavity is so large that the Carrel method can be applied. Even when the adenitis is only indirectly connected with the mouth, the vaccine made from the mouth germs still manifests its efficacy. Although if the streptococcus or other germ is positively recognized, its specific vaccine can be used. Otherwise the mouth vaccine should be given the preference, and he reports striking success with this even with severe furuncles, anthrax, etc., quite far from the mouth. On the other hand, he has sometimes obtained good results with other vaccines, the staphylococcus for example, in buccal and perimaxillar infections. The vaccine he uses is made by the municipal laboratory from a mixture of various specimens of streptococci and a gram-negative diplococcus isolated from the roots of teeth recently extracted, from pus from osteomyelitis of the jaws, from the exudate of a pathologic eruption of the teeth, etc. These bacteria are found constantly in healthy mouths and in polymicrobian buccal infection. They can be readily cultivated in fresh and unaltered human blood or the usual culture mediums. The vaccine contains 250 millions per cubic centimeter, killed by chloroform and heating to 55 C. for half an hour. The sterility is tested by aerobic and anaerobic cultures, and by subcutaneous injection of 2 c.c. of the vaccine in a guinea-pig, weighing 300 gm., without appreciable local or general reaction. Wounds of the mouth, complications of carious teeth, adenitis, osteomyelitis, etc., all benefit both in prophylaxis and in treatment. For the latter he injects 0.5, 1, 1.5 and 2 c.c. in turn with intervals of from two to five days. In prophylaxis, he injects 0.5 c.c., doubling this dose after two days. For children of 5 to 10 he uses a half of the adult dose, and from 3 to 5 a quarter. The doses should also be reduced for patients with heart or kidney disease or suspected of tuberculosis. There may be a general, local or focal reaction, and these should be supervised to avoid the focal reaction, in particular. The vaccine kept in a cool dark place has shown no appreciable alteration over periods of more than a year.

Brazil-Medico, Rio de Janeiro

Sept. 21, 1918, **32**, No. 38

77 New Sporozoon (Pterocephalus leitãodacunhai n. Sp.). G. Hasselmann.—p. 297.
78 Brazilian Gregarinas. X. C. F. Pinto.—p. 297.
79 *Early Diagnosis of Syphilis of Nervous System. D. Madeira.—p. 297.

Sept. 28, 1918, **32**, No. 39

80 Brazilian Gregarinas. XI. C. F. Pinto.—p. 305.
81 *Exploratory Puncture of Liver. O. Clark.—p. 305.
82 Treatment of Lumbricosis in Children. L. Gonzaga.—p. 310.

79. **Colloidal Gold Reaction in Diagnosis of Syphilis of Nervous System.**—Madeira's experiences with this test early in involvement of the nervous system have been extremely favorable. He has been a pioneer with it in Brazil.

81. **Dangers and Fallibility of Exploratory Puncture of the Liver.**—Clark reports a case in which the minute injury from the tip of the needle entailed fatal hemorrhage, although necropsy demonstrated that no large vessel had been injured. In two cases the puncture gave positive findings, but the diagnosis had been certain before and the operation followed at once. In another series the exploratory puncture had failed to reveal the pus pocket discovered at necropsy. In one young man three punctures had been made, in different interspaces, all negative, but that side of the chest contained 6 liters of chocolate pus with total atrophy of the lung. In another case with various negative punctures, the pus had accumulated in the peritoneum, and was encapsulated by false membranes. In another case necropsy revealed the liver studded with a hundred small abscesses, but puncture repeated at several points had not happened to hit one.

Cronica Medico-Quirurgica, Havana

June, 1918, **44**, No. 6

83 Mutual Professional Respect Is the Source of Prestige for Science. J. S. Fernandez.—p. 324.
84 Influence of Animal Experimentation on the Progress of the Medical Sciences. A. Agramonte.—p. 329.
85 Nascent Oxygen in Stomach Disease. R. G. San Martin and P. A. Barillas.—p. 340.
86 *Can Trachoma Be Cured? J. Santos Fernandez.—p. 343.
87 Ileus and Its Treatment. E. Yaniz.—p. 349.

86. **Can Trachoma Be Cured?**—Santos Fernandez remarks that in his many years of practice few have been the cases of actual trachoma which he has seen completely cured. The disease is rare in Cuba even today, and he thinks that the diagnosis is often erroneously made both by the present health authorities of Cuba and those during the American Intervention. When the eye disease is unilateral or when it is easily cured, trachoma can be excluded. With time and efforts, trachoma can be exterminated, like yellow fever. It is a poverty and filth disease, and once established, he reiterates, it is never cured, and the diagnosis can be made positively only on the course of the disease.

Medicina Ibera, Madrid

July 6, 1918, **4**, No. 35

88 Exclusion of Appendix. G. N. Juarros.—p. 3.
89 Varicose Soil and Skin Diseases. Sicilia.—p. 4.
90 *Acute Mastitis with Chronic Course. F. Lozano.—p. 5.

July 13, 1918, **4**, No. 36

91 Inconveniences of Shortened Procedures for Wassermann Reaction. Escudé.—p. 27.

July 20, 1918, **4**, No. 37

92 *Influence of the Influenza Epidemic on Pulmonary Tuberculosis. A. N. Blasco.—p. 54. Commenced in No. 35, p. 1.
93 Treatment of Psoriasis. J. S. De Grado.—p. 56.
94 *Treatment of Tuberculous Meningitis. J. M. Bausá.—p. 58.

90. **Acute Mastitis with Chronic Course.**—Nine days after normal delivery the mastitis developed, and the temperature kept febrile for a month, with edema. The latter was ascribed to a toxic action on the heart from the suppurating mastitis, and the leukocytosis of 18,000 compelled a more rigorous search for concealed pus. But there was no retromammary abscess and the whole subsided just as the deeper operation was contemplated.

92. **Influence of Influenza on Pulmonary Tuberculosis.**—Blasco reports that among seventy-two tuberculous outpatients in his charge, with various phases of pulmonary tuberculosis, taking tuberculin treatment, fifty developed influenza during the epidemic but twenty-six seemed to throw it off without harm. In twenty-four, however, the disease was whipped up to a much more active course, invading hitherto sound regions even in 2 of the 14 in the first stage. The tuberculin treatment did not seem to have any mitigating influence on the pandemic disease.

94. **Tuberculous Meningitis.**—Bausá deplores that he has never been able to save a child with tuberculous meningitis in his sixty cases, and yet, he exclaims, it is a local disease; it does not kill by septicemia, and most of the symptoms are the work of the high pressure. The lesions in the meninges are not incompatible with life; the meninges can rank with the peritoneum and the pericardium, and neither peritonitis nor pericarditis are inevitably fatal. We have means to keep the pressure reduced and apply topical treatment. The disease with its apparently acute course, is really subacute or with a chronic tendency. The "acutization" may be from reinfection or lessening of the defensive forces. The cerebrospinal fluid reforms rapidly, so that the relieving puncture must be frequently repeated, and large amounts withdrawn without fear. Or a cannula might be left as a permanent drain and some antiseptic applied directly to the meninges. He has no suggestion to offer yet as to the antiseptic that might be used, but heliotherapy, local heat and antiserums might be used as adjuvants. Tuberculin treatment might prove dangerous with the meningitis well under way, but it might be of great assistance in warding it off if given during the prodromal phase of vague and fleeting symptoms difficult to note and appreciate.

Prensa Medica Argentina, Buenos Aires

Sept. 10, 1918, **5**, No. 10

95 *Peritonitis in Infants. M. Acuña and A. Casaubon.—p. 97.
96 *Problem of Treatment of Tuberculosis. P. M. Barlaro.—p. 99.

Sept. 20, 1918, 5, No. 11

97 Maragliano's Method of Immunizing against Tuberculosis. P. M. Barlaro.—p. 105.
98 The Fifth Cusp. A. Cabanne.—p. 107.
99 Gallstone Cholecystitis and Duodenal Ulcer. Excision. Recovery. N. Tagliavacche.—p. 110.
100 Rhinolithiasis. M. Galdós.—p. 111.

95. **Purulent Peritonitis in Infants.**—Acuña and Causaubon report a case in a child 21 days old. The infection had probably occurred by way of the umbilicus, and the spleen was found ruptured at necropsy. In a second case, the infant was nearly 5 months old and the peritonitis was evidently secondary to enterocolitis. A third infant only 3 weeks old was taken suddenly in the midst of perfect health, and necropsy disclosed stenosis in the small intestine as the only thing to which the peritonitis could be attributed. All the children were breast fed, but the first showed signs of inherited syphilis. Hydrocele is frequently encountered in such cases, with edema of the scrotum, as an early sign of the peritonitis. The stools were normal in two of these cases and there was constipation in the third.

96. **The Treatment of Pulmonary Tuberculosis.**—Barlaro reiterates that tuberculous infection is readily curable, that the organism is able alone to conquer it. What makes it serious is that other infections become installed, against which the organism is powerless, or the organism is allowed to become so saturated with toxins that it is unable to keep up the fight. There is no need for search for a remedy to cure tuberculosis. What we must seek are means to act on an organism saturated with the tuberculous toxins, and to act on the associated infections. The main point is to strengthen the organism in its fight against tuberculosis before it has become so impregnated with the toxins. He urges efforts to diagnose the tuberculous infection before it becomes localized in any point or organ, and before the tubercle bacillus has reached the stage of the Koch bacillus. In this stage it is resistant to all measures and is unable to serve as an antigen. This is partly on account of its resistant shell and partly because by this time the organism is too much debilitated to be able to manufacture antitoxins to any amount. Tuberculous infection attacks every one practically, and usually the organism conquers it alone and is left more resistant to later infection.

Revista Española de Medicina y Cirugia, Barcelona

October, 1918, 1, No. 4

101 *Characteristic Palograms. M. Gil-Casares.—p. 163.
102 *Eclampsia. F. Proubasta.—p. 172.
103 *Hypochondria. C. Juarros.—p. 177.
104 Popliteal Aneurysm. Trias Pujol.—p. 180.
105 Influenza. P. Esquerdo and others.—p. 185; p. 189.

101. **Palography.**—Gil-Casares gives a number of typical photographic reproductions of the pulse obtained with his palograph. With this it is possible, within certain limits, to estimate the force of the pulse besides the rhythmic aspect, as he explains in detail.

102. **Eclampsia.**—Proubasta analyzes the different theories that have been advanced to explain the pathogenesis of eclampsia, citing various authors. The only certain findings to date, he says, are that the liver is usually and most particularly affected; that there is profound toxemia, and that a substance is found in the serum which acts like epinephrin and resembles the amins, especially those of pituitary origin.

103. **Hypochondriac Ideas.**—Juarros means by this term an exaggerated or baseless preoccupation in respect to the health. Some consider it the result of abnormal sensations of visceral origin, or the abnormal exaggeration from autosuggestion of a normal sensation. The constitutional hypochondria should be distinguished from the occasional, and with the latter, the cases of mental origin must be distinguished from those which have some somatic foundation that may be sought and removed. In short, he declares, the complaints of a hypochondriac deserve serious attention instead of being disregarded as is often the case.

Revista Ibero-Americana de Ciencias Medicas, Madrid

September, 1918, 40, No. 169

106 Aconite in Treatment of Neuralgia. E. P. Noguera.—p. 161.
107 Dislocations and Fractures of the Elbow. S. G. Hurtado.—p. 171. Cont'n.
108 Anorectal Disease. Differential Diagnosis. F. M. Suarez.—p. 177.
109 Psychologic Analysis of St. John the Evangelist. Herrero.—p. 191.

Revista de Medicina y Cirugia, Havana

Oct. 10, 1918, 23, No. 19

110 *Aprosexia of Nasal Origin. H. Segui.—p. 527.
111 Genesis of the Heart Beat. J. F. Arteaga.—p. 531.

Oct. 25, 1918, 23, No. 20

112 *Influenza and Ophthalmology. R. Guiral.—p. 557.
113 Teratosoma Monster. R. M. Orihuela.—p. 559.

110. **Aprosexia of Nasal Origin.**—Segui remarks that inability to concentrate the attention, as a consequence of mouth breathing, is not restricted to children. He reports the case of a woman of 36 and of a man of 41, both of whom suffered from physical and psychic depression and aprosexia from the obstruction to normal breathing and hence accumulation of toxic wastes in the body. The woman had frequent headaches and had lost all her energy, both physical and mental. The inferior turbinates showed such congestive hypertrophy that they almost totally obstructed the passage of air. He reduced both with the actual cautery and gave a little strychnin. In three weeks after the last cauterization the passage was normally permeable and the woman's general condition was normal once more. The man did not have headaches but for over a year had felt incapable of any sustained effort or clerical work. After removal of some obstructing polyps in the nose, normal conditions were restored. In Havana the medical inspectors order an operation for schoolchildren who are mouth breathers.

112. **Ocular Complications of Influenza.**—Guiral found the influenza bacillus constantly in the numerous recent cases of what seemed to be Week's conjunctivitis except that the patients complained of blindness. The redness is not diffuse; there seemed to be a narrow space around the cornea before beginning of the hyperemia. The fibrinous secretion was not suppurative, and there was no pain, no sensation of sand in the eye, but the eyelids and region were puffy. One man of 50 had both corneas ulcerate, with rapid destruction of tissue. The influenza bacilli and the pneumococcus were cultivated from the secretions of the eyes. There was no pain in the eyes, but the general symptoms of influenza were marked. Guiral cauterized the ulcerations and applied a 1:40 solution of zinc sulphate twice a day, but vision in one eye was lost completely. *Almost all the cases had more or less ulceration of the cornea.*

Revista de Medicina y Cirugia Practicas, Madrid

Sept. 7, 1918, 120, No. 1521

114 *Influence of Exercise on Arterial Pressure. M. Bañuelos and S. V. Portela.—p. 257.

Sept. 14, 1918, 120, No. 1522

115 *Version with Placenta Praevia. F. Villanueva.—p. 289.

Sept. 21, 1918, 120, No. 1523

116 *Ozena. I. F. Seco.—p. 321.

114. **Influence of Physical Exercise on the Arterial Pressure.**—Bañuelos and Portela tabulate the findings in tests of boys and young men before, during and after exercising in a gymnasium. They found that moderate physical exercise reduced the arterial pressure, and that this reduction was more pronounced the less the training of the subject. Violent physical exercise raised the pressure.

115. **Limits for Braxton Hicks Version with Placenta Praevia.**—Villanueva's conclusions from his extensive experience are that with vertex presentation this procedure should be restricted to emergency cases with much loss of strength from hemorrhages during the latter part of pregnancy, compelling rapid termination of the pregnancy. Outside of these conditions, and when the condition is not very grave, he thinks that other measures will generally answer the purpose. Tamponing the vagina after rupture of the membranes has often modified conditions favorably in his experience. Although the gauze does not come in contact with the bleeding point, yet the stimulus from its presence is felt throughout the uterus and the contractions assume a new character, the head descends and blocks the bleeding vessels, and the projecting part of the placenta is pushed along out of the way. This can be hastened by injection of pituitary extract, which reenforces the stimulus from the tampon.

116. **Ozena.**—Seco reports favorable experiences with an autogenous vaccine in some cases of ozena. He began with a stock vaccine, and this alone answered the purpose in some cases, but in others he supplemented it with the autogenous. It seems to sterilize the nasal fossas, and by inducing more copious secretion in them clears them of crusts and there is no further tendency to fetidity.

Semana Medica, Buenos Aires

Sept. 5, 1918, **25**, No. 36

117 *The Chemistry of Gastric Juice. F. Landolph.—p. 301.
118 *Pomegranate in Treatment of Amebiasis. R. F. Vaccarezza.—p. 308.
119 Nephrectomy for Tuberculosis. M. Mackintosh.—p. 312.
120 Hygiene of Children's Growth. P. Luisi.—p. 316.
121 The Ovular Theory of Extrauterine Pregnancy. V. Widakowich.—p. 323.
122 Pubiotomy versus Symphysiotomy. T. A. Chamorro.—p. 332.

Sept. 12, 1918, **25**, No. 37

123 Differential Diagnosis of Retroperitoneal Tumors. J. R. Goyena.—p. 341.
124 *Abscess in Side of Pharynx. C. R. Castilla.—p. 346.
125 Tuberculin in Diagnosis and Treatment. J. J. Vitón.—p. 347.
126 *Morbid Associated Movements. C. S. Damel and A. Natale.—p. 352.

117. **Chemistry of Gastric Juice.**—Landolph here describes (in French) his research on the diverse fractions of distillation of the gastric juice of dogs, demonstrating, with precision, by weight, the chlorin obtained in the form of silver chlorid. The first fractional distillate does not modify litmus paper, and hence cannot contain more than traces of chlorin. There is no acid reaction until the gastric juice begins to decompose. He compares the findings with his technic with those of the Hayem-Winter method.

118. **Treatment of Amebiasis with Pomegranate Bark.**—Vaccarrezza does not venture to pass judgment on this treatment but merely reports two cases in which the infusion of the pericarp of a pomegranate was given by the mouth in a pint of milk, and an infusion of the bark of two was given in an enema to be retained. A clinical cure was realized in each case and the stools of one patient now are free from amebas. The other has been lost to sight.

124. **Abscess in Side of Pharynx.**—Castilla reports two new cases, bringing to four his record of lateropharyngeal abscesses. In each case the child developed suddenly fever and extreme prostration, with difficulty in swallowing and moving the head, and the neck looked swollen and was tender. In six or eight hours from the first symptoms a tumor was evident in the side of the pharynx. In all his cases the whole clinical picture promptly retrogressed in from twenty-four to thirty-six hours under hot applications, disinfection of the nasopharynx and injection of a vaccine (Mendez' haptinogeno neumo). No surgical measures seem to be necessary. His fourth patient was a 3 months babe, and lumbar puncture had been done on suspicion of meningitis.

126. **Associated Morbid Movements.**—Damel and Natale describe four new cases of involuntary movements of jaws or eyelids associated with chewing or speaking movements. One case was in a healthy married man of 24 with ptosis of the right eyelid from birth. When told to open his mouth wide, the eyelid rises symmetrical with the other eye, as also when he twists his jaw to the left.

Siglo Medico, Madrid

Aug. 31, 1918, **65**, No. 3377

127 *Prophylaxis of Malaria. G. Pittaluga.—p. 712.

Sept. 7, 1918, **65**, No. 3378

128 *Pathology of the Mediastinum. A. S. Quesada.—p. 730.
129 *Professional Blunders. J. M. A. Sanz.—p. 735.
130 *Research on Dynamics of Heart. M. B. Garcia.—p. 737. Conc'n.

127. **Prophylaxis of Malaria.**—This is a detailed report on the measures that should be adopted to ward off malaria in the public works now under way in Aragon. The chief engineer has appealed to the Instituto Nacional de Higiene, of which Ramon y Cajal is in charge, to aid in stamping out the endemic malaria which has already incapacitated a number of the workmen.

128. **Pathology and Exploration of the Mediastinum.**—Quesada analyzes five different types of findings in the mediastinum and the differential diagnosis therefrom. The arteries usually escape compression, but the veins are liable to be compressed at different points, with widely different disturbances resulting. Compression of nerves is liable to induce a spasmodic cough, attacks of dyspnea, recurrent paralysis, bradycardia, nausea or diarrhea, all of which were represented in the cases described. There is also liable to be spasm of the glottis, respiratory arrhythmia and hyperacidity as manifestations of pressure on the pneumogastric nerve. Pressure on the sympathetic may likewise induce exophthalmos, partial sweating, tachycardia, psialorrhea and lacrimation. Uneven action of the diaphragm and phrenic neuralgia may also be observed. Intercostal neuralgia from pressure on intercostal nerves is more common. The symptoms from compression of vessels are more pronounced when the anterior mediastinum is involved; symptoms from the air passages and esophagus with involvement of the posterior mediastinum, and the liability for pain to develop is greater with the latter. In one of the cases a tuberculous process in lung and ganglia masked an aneurysm of the aorta although it might have been suspected from the spasmodic cough, the pains darting to shoulder and arm, and the history of old syphilis. In another case a man of 39 developed edema of the neck and face, with collateral circulation over chest and umbilical region, tachycardia, psialorrhea, exophthalmos, lacrimation and rebellious diarrhea. This combination of symptoms suggested pressure on the sympathetic nerve, and radioscopy revealed a tumor, evidently malignant.

129. **Professional Blunders.**—Sanz records some historical instances of bad luck pursuing some of the most noted physicians of different ages, or their professional blunders.

130. **Dynamics of the Heart.**—Garcia has been conducting research on the chronotropic influence exerted on the heart by stimulation of the pneumogastric. In this concluding installment he describes the various effects produced according as the ventricle is more or less filled and beating in isometric contraction. The filling of the ventricle, even partially, modifies the effect in a most pronounced manner.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 5, 1918, **2**, No. 14

131 *The Chin and Speech. A. J. P. van den Broek.—p. 1159.
132 *Disease of Both Lateral and Posterior Columns in Spinal Cord. T. Meinema.—p. 1168.
133 Influence of Saponin on Lipase Action. A. L. Flohr.—p. 1177.
134 *Gumma in Orbit. A. A. M. Nelissen.—p. 1183.
135 Cerebral Symptoms in Influenza. J. Lankhout.—p. 1187.

131. **The Chin and Speech.**—Van den Broek is professor of anatomy at the University of Utrecht, and he here discusses the evolution of the chin as a consequence of spoken language. Only when articulate speech became possible were human beings able to manifest their feelings and thoughts to each other, and then began the rapid upward rise. The muscular movements which the use of speech entailed modified the shape of the chin to what we see now.

132. **Associated Spinal Cord Disease.**—Meinema relates that in the course of a few months recently he encountered three cases of combined funicular myelitis. Examination of the blood gave typical findings in all, but there was anemia enough to attract attention only in one of the three cases. This emphasizes the necessity for examining the blood as a routine procedure in every case of spinal cord disease. In one of the cases the only symptoms had been mental, and the discovery of a grave organic spinal disease was a surprise. Delirium, apathy or somnolency have been noted in different cases. A hysteriform set of symptoms sometimes ushers in the trouble. Degeneration of the posterior tracts entails atony, loss of certain reflexes and ataxia, while degeneration of the lateral tracts entails increased tonus, exaggerated reflexes and motor weakness. The combination of the two thus induces a picture that it is easy to imagine, the symptoms of tabes or of spastic spinal paralysis obtaining the upper hand as the case may be. This combination, however, is very rare. His patients were a woman of 29 and two men of 40 and 51. Tabes was the first presumptive diagnosis, but the Wassermann reaction was negative. There was nothing

in the history to suggest a toxic pseudotabes. The blood count in the three cases showed from 1,992,000 to 2,500,000 reds, with a color index of 1.8, 1.35 and 1.75; from 3,500 to 4,500 whites, with 71 per cent. neutrophils and 21 per cent. lymphocytes in the woman. One man showed 75 per cent. polymorphonuclear leukocytes and 25 per cent. lymphocytes. Only one of the three has died and necropsy was not possible in this case. The lesions responsible for the symptoms evidently did not extend into the brain. He analyzes the literature and emphasizes that these changes in the spinal cord do not occur exclusively with pernicious anemia. They have been encountered associated with leukemia, septicemia, ulcerative endocarditis, malaria, cancer, diabetes, tuberculosis, alcoholism, lead poisoning, Addison's disease, pellagra and paralytic dementia. The degeneration in most cases seems to follow the blood vessels. Henneberg thinks that some hemolytic toxin is probably involved which acts to induce both the anemia and the funicular myelitis. The anemia is not always of the pernicious type. MacConnell reported in 1907 a case in which, after a severe hematemesis, atrophy of the optic nerve developed and the combined spinal-cord tracts affection. The latter retrogressed in time, but the optic atrophy persisted. Von Hasselt's case is also instructive, the patient suddenly presenting the symptoms of the combined tracts affection after a severe hemorrhage from a tubal abortion. The woman died in a day or two, but nothing pathologic could be discovered beyond intense anemia of the tracts. Evidently death had occurred before histologic changes had become manifest. If toxins are responsible, we would expect to find the most pathologic changes in the more vascular regions, but this is not the case. The regions with the poorest blood supply seem to suffer most, and these would naturally feel most severely any depreciation in the quality of the blood, and, in these regions, the parts would suffer most which are worn out most.

134. **Tumor in Orbit.**—The woman of 42 complained of disturbance in vision in her left eye. She was fitted with glasses but returned in two weeks with the eyeball protruding from the rapid growth of a tumor. It seemed to be a phlegmon in the orbit, secondary to empyema of the maxillary sinus, but the sinus when opened was found free from pus. Roentgen treatment was applied while potassium iodid was given daily. The tumor in the orbit rapidly retrogressed and the prompt and complete recovery confirmed the assumption of syphilis. The woman's four healthy children and the history of the family explained the case as one of tardy inherited syphilis. The Wassermann reaction had been negative. The inflammation in the maxillary sinus seemed to be a casual secondary infection.

Hospitalstidende, Copenhagen

Sept. 11, 1918, **61**, No. 37

136 *Nonsyphilitic Mental Derangement in Syphilitics. A. Wimmer. —p. 1201. Commenced in No. 36, p. 1169.

Sept. 18, 1918, **61**, No. 38

137 *The Stomach in Cholelithiasis. C. Wessel.—p. 1233.
138 *Experiences with the Danish Red Cross Ambulance in Finland. O. Chievitz.—p. 1256. Conc'n.

Sept. 25, 1918, **61**, No. 39

139 Appendicitis at Copenhagen. P. Verning.—p. 1281. Cont'n.
140 Complications of Distortion of the Knee. H. B. Dahl.—p. 1289.

136. **Nonsyphilitic Mental Disease in Syphilitics.**—Wimmer reviews the present status of our knowledge of the manifestations of syphilis in the nervous system, especially simple syphilitic psychoses. Those of the exogenous type resemble those with typhoid, malaria, alcohol, cocain, carbon monoxid, poisoning and diabetes, uremia, hyperthyroidism, etc. But when we encounter the endogenous form, periodic exacerbations of an inherited constitutional anomaly, of the manic depressive type or the various forms of paranoid, we must be very cautious in accepting a syphilitic origin. The probability is that it is a casual coincidence. In a case described, the man of 25 had presented symptoms of a tendency to dementia in the last few months, five or six years after contracting syphilis which had been given systematic treatment. The strong reactions in the spinal fluid, the connection with neurologic symptoms, and the subsidence of the dementia under specific treatment confirmed the assumption of a transient functional psychosis. Twelve other cases are described with full details in which mental symptoms of hysteria coincided with nervous manifestations. In the second stage of syphilis in one woman of 29, the clinical picture was very puzzling; dementia was assumed at first. In some other cases there was an attack of mania before the infection with syphilis. Necropsy confirmed the assumption of an old endogenous manic-depressive psychosis with recent syphilitic meningitis or paralytic dementia. In another case the paranoid psychosis with hallucinations seemed to be an exacerbation of a pronounced psychopathic constitution for which the unmistakable cerebral syphilis could not be held responsible. The cases reported demonstrate that even with the four syphilitic reactions positive in the spinal fluid, it does not follow that the psychosis observed is necessarily of syphilitic origin. At the same time, this is the general rule, and the reactions in the spinal fluid can usually be relied on. Coincidence of nonsyphilitic psychoses with cerebral or meningeal syphilis is very rare.

137. **The Stomach with Gallstone Disease.**—Wessel examined the stomach findings after different test meals, and with the roentgen rays in 205 persons with gallstones. An operation was done on 5 of the men, 70 of the women and one child. Among the points thus established was the reduction or complete suspension of production of hydrochloric acid when the gallbladder functioning was arrested. Hypochylia or achylia seems to be very frequent with cholelithiasis, and it seems to persist. Gastritis probably develops in time, rendering the achylia irreparable. It seems to be a reflex phenomenon and it is his impression that achylia is the rule after cholecystectomy. In his forty-one cases in which the stomach findings were investigated in cases of infectious processes in the biliary passages, hypochylia or achylia was the rule. The question as to the possibility of reflex achylia seems to have been definitely decided by this research. The discovery of this reflex achylia calls for prompt operation on the biliary passages before irreparable lesions are installed, and, further, it warns not to remove the gallbladder if it is in any way possible to save it. Rovsing has long combated the tendency for cholecystectomy, and these researches show that with this operation we may leave our patients with a permanent stomach affection. The achylia is an indication for a gallstone operation not only to ward off an irreparable gastritis, but because the bile passages seem to become infected more readily when gastric secretion is below par.

Wessel's statistics are not large but they are so conclusive, he says, that he marvels that greater attention has not been paid hitherto to the connection between achylia and infectious processes in the biliary apparatus. Another practical point emphasized by his research is that oil treatment and saline purgatives are contraindicated when there is achylia. In a number of his patients the achylia was what first gave the clue to the cholelithiasis. It is possible that some of our patients whom we have been treating for gastritis alone, may have unsuspected gallstones. Fluctuations in the hydrochloric acid content of the stomach are instructive, as also variable retention of the stomach content. In some of his cases the gallstones were evidently responsible for the eight hours' retention after a Bourget-Faber test meal. Roentgen examination usefully supplements the other tests, revealing possibly four hours' retention or a displacement of part of the stomach pulled aside by pericholecystitis processes. By these means we can detect the presence of gallstones that never have given rise to colics. A gallstone does not entail urobilinuria when it is resting, but any obstruction from it entails stasis of bile, and this is revealed by urobilinuria unless the obstruction is total. The jaundice and the clay colored stools are not so instructive as to complete obstruction, as the sudden disappearance of urobilin from the urine. The discovery of achylia, with a contemplated gallstone operation, warns against delay to save the stomach from further damage.

138. **Danish Red Cross Ambulance in Finland.**—Chievitz here concludes his rambling notes of his experiences in Finland, which have been published serially during several weeks.

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THE SIGNIFICANCE OF TUBERCULOSIS IN INFANTS AND CHILDREN

WITH MEASURES FOR THEIR PROTECTION *

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One of the most important advances in recent years in connection with the study of tuberculosis has been the realization that human infection by tubercle bacilli takes place usually during infancy or early childhood. If we consult medical treatises written forty or fifty years ago we find it stated that infants rarely are subject to tuberculosis: accordingly, this aspect of the disease is dismissed with scant consideration.

To von Behring belongs the credit of focusing our attention sharply on this new aspect of the problem—an attention which has been allowed gradually to lag and wander. If we are to benefit to the full by this new knowledge in our arduous fight against this disease, concentrated study should be devoted to gaining a comprehensive understanding of all that pertains to infection at this period. It is evident that such knowledge primarily includes a clear conception of the sources of infection, of its frequency at various ages, and of the several factors that tend to influence its clinical course.

Almost all mortality statistics dealing with tuberculosis calculate the death rate according to one of the two standard methods: either in relation to the mortality from other diseases at the same age period, or in terms of deaths per thousand or ten thousand living individuals of the same age. When the former, or "comparative method," is carried out in regard to the first year of life, tuberculosis is compared principally with the large volume of deaths due to prematurity and to diarrheal and respiratory diseases. Such a comparison may readily lead us into the error of considering it a disease of minor importance. This method of assigning each disease its relative rather than its absolute status is valuable for those who are making a study of a particular age period. In the case in point, for example, it is of interest to those concerned solely in infant welfare. It may lead us far astray, however, if we desire information as to the actual importance of tuberculosis in the early years of life, in order to ascertain whether it constitutes a serious problem in combating this disease. A similar criticism holds true, to a less extent, when we consider the deaths from tuberculosis in their ratio to living individuals. Manifestly there must be more people alive under the age of 1 year than in any other one year period. Accordingly, an equal number of deaths from tuberculosis will appear less numerous and important at this time of life if calculated on such a percentage basis. It is clear, therefore, that we who are interested in investigating tuberculosis will not come to a clear understanding of our problem by adopting either of these statistical points of view. It will be advisable for us to ascertain in absolute numbers how many deaths occur year by year, or period by period, in order to obtain a true concept of the ravages of this disease.

GREAT MORTALITY IN FIRST YEAR OF LIFE

With the cooperation of Dr. Guilfoy, registrar of the Department of Health of the City of New York, I have prepared tables designed to throw the subject into relief from this point of view. The first table gives the absolute number of deaths from tuberculosis at different ages in Greater New York for the past five years (Table 1). A glance shows the large number of deaths from tuberculosis during the first and second years of life, and further study brings out the *striking fact that the* deaths during the first year of life exceed those of any other year excepting the period between 35 and 40. When we take into consideration the great difficulty in diagnosing tuberculosis in the infant, and the number of cases that doubtless are mistakenly registered as congenital debility (a group that comprises over one quarter of the deaths of infants under 1 year), it would seem no exaggeration to state that *deaths from tuberculosis in no one year exceed those of the first year of life.* It is evident, therefore, that, in our efforts to combat tuberculosis, attention should be directed to the infant.

TABLE 1.—DEATHS FROM TUBERCULOSIS IN NEW YORK CITY (1913-1917) ACCORDING TO YEARLY PERIODS

Age Period (Year)	Pulmonary	Other Forms	Total
0- 1	205	1,064	1,269
1- 2	181	967	1,151
2- 3	98	604	702
3- 4	81	359	440
4- 5	74	280	354
5- 9*	63	134	197
10-14	114	54	168
15-19	514	72	586
20-24	938	78	1,016
25-29	1,069	78	1,147
30-34	1,110	62	1,172
35-39	1,397	59	1,356
40-44	1,058	71	1,129

* Figures after 5 years of age are averages of quinquenniums.

A consideration of the mortality from tuberculosis during childhood naturally leads to the inquiry as to when the children become infected; it calls for statistical information in regard to infection. There have been many studies of the frequency of tuberculosis infection in childhood, especially since simple methods of applying the tuberculin reaction have come into vogue.

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* Read before the Trudeau School of Tuberculosis, Saranac Lake, July 17, 1918.

One of the most thorough inquiries of this kind has been carried out during the past two years by Dr. Bass[1] at the Home for Hebrew Infants, an institution harboring about 400 children under 6 years of age. It should be borne in mind that children of this kind come from the poorest quarters of the city, and therefore cannot be considered representative of the entire urban population. Bass found in over 1,000 tests that 7.8 per cent. of the infants under 6 months of age reacted positively to tuberculin, that 15.8 between 6 and 12 months reacted, and that 75 per cent. of the children between 5 and 6 years gave a positive reaction (Table 2).

These percentages may impress one as exceedingly high, and, in point of fact, are higher than those reported by many others. On the other hand, we find that Calmette[2] and his co-workers found that 8.7 per cent. of infants under 1 year had a tuberculous infection, and that Kaspar[3] placed this figure at 10 per cent. A single von Pirquet test would not lead to these results. If, however, multiple tests are made and the intracutaneous method (Mantoux) is employed, a far larger number of positive reactions will be elicited than when reliance is placed on a single cutaneous test. For the tests to which we have reference, three cutaneous as well as three intracutaneous inoculations were made at appropriate intervals.[4]

TABLE 2.—AGE DISTRIBUTION OF PATIENTS REACTING POSITIVELY TO CUTANEOUS OR INTRACUTANEOUS TEST

Age	Number Tested	Reacting Positively	
		Number	Per Cent.
0-6 months	51	4	7.8
6-12 months	38	6	15.8
1-2 years	29	5	17.2
2-3 years	45	14	31.1
3-5 years	28	12	42.8

After the first two years of life, a quiescent period gradually begins to set in as regards the development of clinical tuberculosis. We also find year by year that fewer children die from this disease (Table 1), notwithstanding the fact that, as just mentioned, the number of infections steadily increases. Another change to be noted is that, whereas during the first few years of life there are comparatively few deaths from pulmonary tuberculosis, the great majority being due to meningitis, at about 10 years of age this relationship is reversed, and from this time forward the great majority of deaths are due to pulmonary involvement.

There is a second active phase in the development of tuberculosis. This is usually associated with the quinquinquennium from 10 to 14 years, and has been recognized for some time. It was brought out some years ago by Guilfoy,[5] who showed that the death rate from tuberculosis in New York City in 1907 had increased during this age period as compared with that in 1867. It is a subject which has been emphasized recently in an excellent report by Dublin[6] on the mortality of childhood. We shall consider it later in detail.

EXPOSURE AND SUSCEPTIBILITY

What is the cause of these periods of exceptional mortality? Let us first take up the period of infancy, and study the factors which during these first years of life predispose to death from tuberculosis. These may be summarized as increased exposure, heightened susceptibility, or a combination of these two factors. There can be no doubt that, when a tuberculous mother or nurse cares for an infant, it is exposed to infection to a degree far greater than are the older children of the household. Close contact under such conditions renders escape from infection almost impossible, so that it can be accepted as axiomatic that marked exposure plays a rôle in the high mortality that we have recorded. There is, moreover, the double danger of frequent infection and of transmitting a large number of tubercle bacilli—the natural result of the fondling of a baby by a tuberculous person. This question of the dosage of the infecting agent is probably one of the most important factors bearing on the tuberculosis of infants. It is thoroughly appreciated by those who have devoted thought to this subject that, as the result of the intimate contact, the infant must take in a large number of tubercle bacilli. It is not, however, generally appreciated that the quantity of bacilli is large, not only from an absolute point of view, that is, in point of numbers, but also relative to the size of the infected individual. In animal experimentation we note carefully, not only the amount of virus with which we inoculate an animal, but also the weight of the animal inoculated. It is probable that, in general, the same laws hold good in relation to human infection. If such is the case, we must bear in mind that an infant weighing from 8 to 15 pounds and taking in an average number of bacilli, is receiving relatively ten to twenty times the dose of an adult. The size of the host is relatively ten to twenty times smaller.

In addition to the factor of high dosage it is generally admitted that infants are peculiarly susceptible to tuberculosis, causing the infection to run a particularly rapid course. This phenomenon is commonly attributed to the fact that infants furnish virgin soil for the tubercle bacillus, not having acquired any immunity as the result of previous infection. This explanation for their marked vulnerability, which is unquestionable, should not be allowed to pass unchallenged. If this were the full explanation, we should expect that an older child, one of 5 or 10 years of age, who is infected for the first time, should likewise develop progressive tuberculosis. Such, however, is not the general experience. Some years ago a tuberculous nurse in an infant asylum infected a group of children from 3 to 5 years of age.[7] Many of these young children, who previously had repeatedly given a negative reaction to tuberculin, developed a positive reaction within a short period. In other words, they were infected for the first time at this age, having lived in the sheltered surroundings of an institution. None of them, however, developed tuberculous meningitis or other active form of tuberculosis, such as would certainly have occurred had this unfortunate accident taken place during the early months of their lives. It would seem that age brings with it a certain degree of immunity, just as it does in scarlet fever, diphtheria and some other of the infectious diseases. It may be that in addition to a specific immunity, there is a general immunity, brought about by the various infecting viruses, and that the particular susceptibility of infants to tuberculosis is due in part to the fact that their tissues have never had to react protectively to pathogenic bacteria.

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[1] Bass, M. H.: Cutaneous and Intracutaneous Tuberculin Tests in Infants and Children, Am. J. Dis. Child. 15: 313 (May) 1918.

[2] Calmette, A., quoted from Jeanneret, L.: La tuberculose de l'enfant, Paris, 1915.

[3] Kaspar, K., quoted from Jeanneret (note 2).

[4] Although the intracutaneous test is more delicate than the von Pirquet test, it should not be taken for granted that, if the former is negative, the latter in all instances must likewise be negative. We have encountered cases which gave no reaction to repeated intracutaneous injections but responded to the skin test. This aspect of the tuberculin reaction deserves further study and elucidation.

[5] Guilfoy, W. H.: New York M. J. 88: 1018, 1908.

[6] Dublin, L.: Am. Statistical Assn., March, 1918.

[7] Hess, A. F.: Report of a Group of Infants Infected by a Tuberculous Attendant, J. A. M. A. 60: 1617 (May 24) 1913.

BOVINE INFECTION

In an analysis of the causes leading to the high infantile mortality, another factor has to be considered which is brought about both by exceptional exposure and special susceptibility. I have reference to deaths due to infection of the bovine type of tubercle bacilli. As is well known, this is still a mooted question, some believing with Koch that this agent does not need to be considered in a study of the tuberculosis problem. However, in the comprehensive investigation of human and bovine tuberculosis carried out by Park and Krumwiede,[5] about 15 per cent. of the deaths of children under 5 years of age were due to bacilli which they identified culturally as bovine in type. This, accordingly, is a factor which must be considered in accounting for the high mortality of this period, although it should not be appraised as a preponderating influence. These percentages of bovine infection are sufficiently high to be taken cognizance of from a prophylactic standpoint. They are, indeed, surprisingly great for a city like New York, where such a large part of the milk is subjected to pasteurization. It would seem advisable from time to time, at intervals of about five years, to carry out similar investigations in our large cities, in order to obtain reliable information regarding the prevalence of bovine tuberculosis, and to furnish a sound basis for stricter sanitary ordinances, should the high morbidity and mortality not diminish.

INFECTION FROM LATENT CARRIERS

Opinion is still divided as to exactly how the majority of infants and children become infected with tuberculosis; how it comes to pass, for example, that 43 per cent. of these children between 3 and 5 years of age gave evidence of having taken in tubercle bacilli. In many instances we are able to trace the source of infection of clinical tuberculosis in infants, of tuberculous meningitis or other active forms of the disease. In the majority of cases the mother is responsible, the father and other members of the household transmitting the disease less frequently. In a considerable number of instances, however, it is impossible, probe as we may, to ascertain the source of infection. This is true in a far greater measure when the infection is very mild and we are dealing with an older child in apparent health, who merely reacts to one or more tests with tuberculin. In my opinion, these children are infected in a manner not essentially different from those in whom the source is traceable, the difference being merely that in the former the focus is unrecognized—that they have been in contact with communicable but undiagnosed tuberculosis. There is a clinical basis for this point of view. It is within the experience of most physicians that persons in apparently normal health may show tubercle bacilli in the sputum. This has come to light even in relation to physicians in the course of a casual examination of their own sputum. It seems probable that there are many individuals who from time to time excrete tubercle bacilli, who are occasional shedders, if we may use this term, of tubercle bacilli, and who are responsible for the large numbers of reactors encountered among children tested with tuberculin. It would be of interest and importance, to put this question to a test, to examine the sputum of individuals who from time to time suffer from an apparently negligible cough, making tests daily for a period of months, and using not only stained films, but the more searching method of fluidification and centrifugation of a large quantity of sputum. If this explanation is the correct one, it brings out the immensity of the tuberculosis problem, and, at first glance, may seem to offer a most disheartening outlook. We must remember, however, that, in general, persons with a positive sputum are dangerous in proportion to the number of bacilli which they excrete and only for the period of time during which they are "positive cases." It does, however, emphasize the fact that, where there are young children, we should watch more carefully for communicable tuberculosis among the adults of the household who suffer from apparently harmless catarrhal respiratory infections.

TABLE 8.—DEATHS FROM TUBERCULOSIS (ALL FORMS) IN THREE LARGE CITIES ACCORDING TO SEX AND YEARLY PERIODS*

Years	New York				Chicago, 1917		Philadelphia, 1917		Total		Grand Total
	1916		1917								
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5	22	25	23	22	7	9	4	4	56	67	123
6	22	17	15	14	9	9	11	8	58	48	106
7	15	15	24	15	9	6	9	4	54	38	92
8	17	14	19	15	6	6	8	9	45	44	89
9	12	9	13	20	8	2	5	1	35	32	67
10	9	17	10	9	1	4	4	5	24	35	59
11	12	10	9	9	5	5	6	6	32	30	62
12	10	15	10	23	1	6	1	7	22	51	73
13	17	22	17	23	4	11	4	8	42	74	116
14	11	21	15	28	7	12	6	23	39	101	121
15	18	42	15	34	6	21	5	18	44	115	159
16	25	34	45	35	4	17	14	26	88	172	260
17	31	63	43	31	15	21	18	32	153	157	310
18	62	82	63	61	12	39	15	24	156	206	362
19	82	87	74	97	27	35	30	32	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	100	102	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	121	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	112	106	105	98	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	127	125	117	111	[illegible]	[illegible]	[illegible]	[illegible]	311	219	[illegible]
24	98	88	121	95	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	130	88	124	138	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	110	104	140	109	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	121	88	137	98	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	133	111	149	99	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	120	[illegible]	133	91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	150	97	133	92	67	45	45	35	475	[illegible]	[illegible]

* This table shows that there is a marked increase in the absolute mortality from tuberculosis at about the thirteenth year of life (first column). This sudden increase corresponds to maturity, and, it will be noted, occurs in girls at 13 and in boys at 15 years of age.

SECOND ACTIVE PERIOD

As mentioned above, after the second year of life a remarkable decrease in the number of deaths from tuberculosis becomes evident; a quiescent period sets in which continues with increasing emphasis for a space of about ten years. Then follows what may be termed the second heyday of tuberculosis, a protracted period of high mortality showing no mitigation until the early forties. This marked rise is peculiar to tuberculosis, for the general death rate is, as we should expect, at its lowest ebb at this time of life. In an attempt to define more sharply the onset of this important period, we have compiled statistics showing the number of deaths from tuberculosis year by year in three of our largest cities (Table 3). This shows that the increased mortality begins rather abruptly at the thirteenth year and rapidly progresses (Table 3, last column). When we classify these figures according to sex, we note that this increment is due entirely to an increase in deaths among females; that the deaths of girls from tuberculosis increases markedly at the age of 12 years, whereas a corresponding increase in the number of deaths among boys does not take place until 16 years of age. This shows the fallibility of relying solely on quinquennial periods in tabulating statistics—the mortality of the females falls in the third quinquennium, that of the males in the fourth (Table 4). At the age of 20, for the first time after infancy, more boys die of tuberculosis than girls. A striking feature of this study of the sex factor is the uniformity in the occurrence of the increment, its variability in the three cities for 1916 and 1917 never exceeding one year. In considering these tables we must always bear in mind that the susceptibility to infection must antedate, by at least a year, the mortality from the disease.

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[5] Park, W. H., and Krumwiede, C.: J. M. Res. 27: 115, 1912.

TABLE 4.—DEATHS FROM TUBERCULOSIS IN NEW YORK CITY ACCORDING TO SEX AND QUINQUENNIAL PERIODS

Age Period, Years	1916				1917				Total		Grand Total
	Pulmonary		All Forms		Pulmonary		All Forms				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
0- 5	54	51	371	308	67	45	403	337	895	741	1,636
5- 9	23	22	84	78	23	25	92	88	222	213	435
10-14	31	75	57	105	33	79	62	100	183	359	542
15-19	209	292	251	328	215	306	248	338	923	1,564	2,486
20-24	456	436	491	475	508	466	541	502	1,999	1,879	3 878
25-29	591	458	630	486	642	430	688	476	2,051	1,859	3,910
30-34	717	280	760	404	732	297	770	473	2,979	1,654	4,633
35-39	829	236	859	356	843	323	877	350	3,408	1,365	4,773
40-44	686	282	714	298	796	272	822	286	3,018	1,138	4,156
45-49	666	206	689	221	661	189	691	201	2,713	823	3,536

How are we to interpret this sudden increase of deaths from tuberculosis? The most convincing interpretation of these figures seems to be that they are governed by the onset of maturity, by the evident but little understood forces that become potent at puberty. No other explanation accounts so fittingly for the sudden and precocious alteration in the reaction of the female to tuberculosis infection, and to the later but equally significant impetus in the mortality of the male.[9]

But if we accept this explanation for the great increase of the disease at this life cycle, we must accept the premise that reinfection has its source probably from within the body and not from without; that it is an autoinfection from an old tuberculous focus. For it is evident that boys and girls are not exposed to infection at this particular age more frequently than at a younger period, when we note that deaths are comparatively few. It is still more evident that girls are not subjected to this danger four years earlier in life than boys. It may be answered that these considerations prove that maturity is an etiologic factor, but that it has merely a predisposing influence, rendering the tissues more susceptible to tubercle bacilli entering from without. But we have seen that there is a remarkable constancy in the year of increase in the mortality in the female as well as in the male, that almost without exception the mortality of the former advances sharply at the age of 12 years and that of the latter at the age of 16. If this is brought about by an intake of tubercle bacilli transmitted by contact infection, we must presuppose that these girls and boys are being infected with tuberculosis every year of their life. In no other way could this uniform periodicity be accounted for. It is more logical to regard this sudden flare up as an activation, at the time of maturity, of some lesion in the bronchial gland or in the lung, which had remained latent from early childhood.[10]

COUNTRY PREVENTORIUMS

It follows, therefore, that tuberculosis is a disease fraught with the greatest danger to child life, and is most to be feared at the extremes of this period. Such being the case, what is being done to cope with this situation, to protect our infants and adolescents? In regard to the former, the following incident is indicative: A few years ago we ascertained the number of infants in the homes of the children who were at that time at the Tuberculosis Preventorium (at Farmingdale, N. J.). This institution cares for children of tuberculous parents, and accommodates about 180 girls and boys between the ages of 4 and 14. It was found that in the 120 homes there were forty-two infants under the age of 2 years who were exposed to infection. On writing to the commissioner of charities of the city of New York acquainting him with this situation, and asking how to protect these infants, he replied, after due consideration, that there was no institution or other provision for this class of case. The hospitals would not accept them because they were not sick; the orphan asylums refused them admission because the parents were living, and the infant asylums because they were not destitute. Accordingly, we established in connection with the institution a small preventorium for infants which has been maintained for the past three years. I shall not go into the details of the working of this endeavor, as a report has recently been published of its activities.[11] It will perhaps interest the reader to learn that we have not encountered any insuperable difficulties in its administration; that mothers will part with their babies for a period of at least a year if they are told of the danger to which they are otherwise subjected, and that the infants have thrived in the institution. There are merely two points which it may be well to emphasize: The first is that to insure success the infants must be separated from their mothers early, before they have been infected, as shown by a von Pirquet test, and second, that, owing to the fact that most of the mothers died during the first year of the infant's life, there rarely has been danger of returning the baby to its dangerous environment. The instances in which the pressure to return an infant to infectious surroundings has constituted a knotty problem have been few, far fewer than we had expected.

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[9] It is of interest in this connection that reports of the U. S. Department of Agriculture show that of the steers and bulls retained for tuberculosis during the years 1915, 1916 and 1917, only about 7, 6.5 and 6 per cent. of the former were condemned annually against about 10, 10 and 10.75 per cent. annually of the latter. Possibly castration may account for the smaller percentage of progressive tuberculosis among the steers.

[10] The fact that the soldiers develop tuberculosis generally within a month or two of their entrance into active service is probably best interpreted as the fanning into activity, through the stress of hard life, of old foci of disease.

[11] Hess, A. F.: Am. Rev. Tuberc. **1**: 669, 1918.

It would seem that the best way to begin to combat this high mortality from tuberculosis would be to establish preventoriums for infants in connection with the large cities. These institutions should be situated in the country about two hours' train ride from the city.[12] They should be built with many balconies so as to provide for an outdoor life, and should be conducted by children's specialists according to the most approved methods (provided with one or more wet-nurses). The infants should be kept at the institution for at least a year. This central preventorium for infants could well serve as the administrative center for a system of boarding out of infants in the farm houses of the surrounding country, under supervision of the physician and nurses of the institution; babies who were not thriving could be returned to the precincts of the preventorium for special care and treatment. There is good reason to believe that by this means thousands of babies in the large cities, who will be infected by their parents, could be saved and grow up as healthy individuals. This question is particularly opportune and urgent at the present time, when many soldiers will return to their homes having communicable tuberculosis.

The problem of the protection of older children against tuberculosis may likewise be said not to have been seriously considered in the United States. Here and there a disjointed effort has been made to provide for a few children, but the need has not been sufficiently clear to stimulate either those active in the field of tuberculosis or others interested in problems of child welfare to map out a definite program. In France the Gaucher movement was organized in 1907 to carry out prophylaxis against tuberculosis in childhood. This organization, which has grown year by year, sends children to homes throughout the country districts of France, where they are cared for by foster parents for many years. The idea is an excellent one, and the work undoubtedly greatly benefits the children.[13] It provides, however, for children only between the ages of 3 and 13, and therefore does not embrace the two critical periods of tuberculosis. It should be supplemented by measures for the care of infants, and, it would seem, should extend the age limit of its surveillance.

One measure which I would suggest to guard against the tuberculosis of maturity is the establishment of preventoriums throughout the country similar to that at Farmingdale, N. J. Children should be sent to such institutions who are poorly developed and undernourished and give a positive tuberculin reaction. If it is true that infection at this period of life emanates from a focus within the body, then malnutrition should play a dominant rôle in the selection of the cases. These children should be kept in the country for from three to six months. It may be objected that, after a few months in the city, they will have lost the benefit of their stay in the country. Such, however, does not seem to be the case. It is difficult to estimate for how long a period children maintain the benefits gained at preventoriums or sanatoriums because the factor of growth complicates the estimation of weight. It would seem best, therefore, in judging whether they are able to hold their gain, to weigh them six months after they have left the institution, an interval so short as to render growth a negligible factor. We have found recently that more than 90 per cent. of the children who have been at the preventorium held their entire gains in weight after this interval, and that the losses in almost all cases have been slight. The children should be under surveillance for many years following their return to the city, and be sent to the preventorium for a second or third time should their nutritional condition demand it.

As the result of a study of the mortality statistics we must conclude that it is inadvisable to make the age of admission from 4 to 14 years, as the high mortality does not begin until 12 in girls and 16 in boys. In view of the great need for preventoriums it would seem wise to accept girls only from the ages of 10 to 16 and boys only from 14 to 18, in other words, two years before the onset of the high mortality. With this change in the age of admission comes the advisability of providing separate preventoriums for boys and for girls. Finally, it seems possible that some affiliation might be made with agricultural schools whereby these children could be referred to such institutions and thus trained in a permanent outdoor occupation.

This is the Children's Year. The Children's Bureau of the United States Department of Labor has inaugurated this movement in order to conserve the lives and health of children as a measure of national defense. The countries of Europe have realized as a result of the war that the protection of the lives of babies has become more than ever a patriotic duty. It would seem as if those actively interested in the propaganda of tuberculosis might properly join forces with those inaugurated by the government, and focus their efforts on the coming generation to prevent the large wastage due to preventable tuberculosis.

SUMMARY

Statistics of infant mortality that show the ratio of deaths from tuberculosis compared to other diseases do not give a true conception of the importance of tuberculosis at this period of life. To arrive at a better understanding of this problem, we must prepare figures showing the absolute number of deaths annually. We then find that in no one year do the deaths from tuberculosis exceed those of the first year of life. This great loss is due in part to the peculiar susceptibility of infants, in part to the fact that they receive an exceptionally large amount of the infective agent. The dosage is large, not only in an absolute sense, in the number of bacilli conveyed by the mother or other infected individual, but also from a relative point of view, when we consider the comparatively small size and weight of the baby. Bovine infection plays a part that is minor but not negligible. In view of the not inconsiderable mortality that has been shown to be occasioned by the bovine type of bacillus, it would be well if cultural studies of tuberculosis in infants should be carried out from time to time, in order to gain an insight into the degree to which milk employed for infant feeding is contaminated by virulent tubercle bacilli.

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[12] It is of distinct advantage to have an institution of this kind far enough away from the city for the items of expenditure of time and money to act as a deterrent to frequent visits on the part of mothers.

[13] When we consider that tuberculosis tends to flare up at puberty and to continue to reap a high toll of deaths for many years thereafter, it is evident that statistics reporting the benefit of treatment or of hygienic measures must cover this susceptible period to be convincing and of real value. Very little is demonstrated by reports showing that children discharged from sanatoriums or preventoriums have remained well until 15 or 20 years of age. The crucial test comprises the long span of early adult life.

Following the period of infancy there is a quiescent phase in the mortality from tuberculosis, throughout which the deaths decrease year by year, although the number of infections, as shown by the tuberculin reaction, steadily increases. These infections are due probably to latent carriers, to individuals who from time to time shed tubercle bacilli. A daily examination of the sputum of a series of individuals, carried out carefully and for a period of months, might well be undertaken in order to test the validity of this hypothesis.

There is a second active phase in connection with the mortality from tuberculosis. This is commonly associated with the third quinquennium of life. If we study the deaths year by year, rather than by quinquenniums, we find that this period begins at 13 years of age, and that it is not coincident in females and in males. Among the former it sets in rather sharply at the age of 12, whereas among the boys the flare up does not manifest itself until the age of 16. This distinction was found to hold good for several large cities, and is governed probably by the onset of puberty. This uniform periodicity in the increase of deaths from tuberculosis, taking place in both girls and boys at a definite year of life, leads us to believe that the disease is due to an "autogenous reinfection" from some latent focus, rather than a fresh infection from a tuberculous individual.

Much good could be accomplished in combating tuberculosis both in infants and at puberty by providing country preventoriums in connection with the large cities. In view of the mortality incidence outlined above, it would seem advisable to change the present usage in regard to the older children and to restrict these institutions to girls from the ages of 10 to 16 and to boys from 14 to 18. In this way provision would be made for hygienic measures two years before the onset of the second period of high mortality.

16 West Eighty-Sixth Street.

Health of Food Handlers in New York City.—New York City under its Sanitary Code has a regulation regarding the examination of food handlers, requiring them to obtain certificates of health from the health department. An analysis of the results of the examination of 1,980 of these persons, as set forth in an abstract in the *American Journal of Public Health,* shows that 1,590 of these were males and 390 females; 80.2 per cent. were in the age period between 20 and 44 years; 81 per cent. were restaurant and hotel workers and 16 per cent. were confectioners and bakers. Of the 81 per cent., 44.2 per cent. were waiters and waitresses, 19.6 cooks and 9.1 per cent. dishwashers and kitchen employees. The examination of these cases was very thorough. It was found that 32.1 per cent. of the males and 13.3 per cent. of the females were free from disease or any other condition worthy of mention. But among the diseases and defects found were 10 cases of active tuberculosis, 3 arrested cases and 12 suspected cases; 19 cases of active syphilis and 32 of suspected syphilis, and 6 cases of gonorrhea. The prevalence of this latter disease among women was not determined. There were 370 cases of anemia, 112 cases showing eye diseases, 124 cases of heart disease, 64 of diseases of the arteries, 237 cases of varicose veins, 110 cases of colds and rhinitis, 25 cases of chronic bronchitis, 104 cases of pulmonary emphysema, 208 cases of pyorrhea alveolaris, 288 cases of dental caries, 202 cases of pharyngitis, 62 cases of hernia and 133 cases of flatfoot. Bakers and cooks seem to suffer particularly from cardiovascular disease, anemia, flatfoot and respiratory disorders.

THE EFFECT OF HEAT ON THE SPORES OF BACILLUS BOTULINUS

ITS BEARING ON HOME CANNING METHODS: PART 1[*]

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There are four methods commonly used in the home for canning fruit and vegetables. They are:

1. The hot pack method, in which the fruit and vegetables are cooked in the open kettle till done and then sealed in clean jars while hot.
2. The cold pack method, in which the fruit or vegetables are first blanched, then packed in jars and the jars put into water and boiled for one continuous period of from one and a half to five hours.
3. Intermittent or fractional sterilization, the fruit or vegetables being packed cold in the jars and the jars placed in water and boiled from fifteen to sixty minutes on each of three successive days.
4. Pressure canning, in which the filled jars are sterilized with steam under pressure.

Of these methods the first two are probably more generally used because they require no special apparatus as for pressure canning, and the work is completed in one day, whereas the fractional method requires three days.

The latest books on bacteriology state that the spores of *B. botulinus* are easily killed, a temperature of 80 C. (176 F.) for sixty minutes being sufficient. If this statement were true of all strains of *B. botulinus,* any one of the four methods of canning mentioned would be amply sufficient to sterilize fruit or vegetables contaminated with *B. botulinus,* and development of toxin in jars would indicate gross carelessness on the part of the cook.

Seven cases of botulism were investigated by Dr. E. C. Dickson of Leland Stanford Junior University School of Medicine during the winter of 1917 and 1918, and in four of these cases I succeeded in isolating *Bacillus botulinus,* either from dead chickens, sick hogs or directly from the cans of fruit or vegetables. In two of these cases, vegetables were canned by the cold pack (one period) method. One of the cooks stated positively that she had kept the filled jars in a covered boiler with the water actively boiling for three hours. She did not, however, blanch the peas before placing them in the jars. In the third case of poisoning the beans were canned by the fractional method, and in the fourth case, in which the poisoning of eight persons followed the eating of canned apricots, the fruit was cooked in the open kettle and sealed, while hot, in the jars. As the cook was one of the first victims, there are no data as to just how long the fruit was cooked.

In view of these conflicting data, a series of experiments were begun to determine the effect of heat on the spores of *B. botulinus.* The work is being carried on under a special grant from the State Council of Defense of California, and has been performed in the Laboratory of Bacteriology and Immunity of Leland Stanford Junior University, where Dr. W. H Manwaring has generously facilitated the work in every way.

There are in this laboratory ten strains of *B. botulinus.* Strains I and II came from the Museum of

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[*] Report of the Botulism Research of the State Council of Defense of California, July, 1918.

Natural History, New York, and Columbia University, respectively, and I do not know where they were isolated. They produce very weak toxin and their colony formation is not uniform. Strains III, IV and V were isolated by Dr. Dickson from cases of botulism occurring in California and Oregon in 1916 and 1917. Strains III and IV produce a strong toxin and characteristic colonies. Strain V produces a weak toxin and its colonies are not uniform. Strain VI was isolated from cheese in Massachusetts. It produces strong toxin but its colony picture is not uniform. Strains VII, VIII, IX and X were isolated by myself during the past winter from the cases investigated by Dr. Dickson.[1] Strain VII came from Seattle, and the other three from California. They all produce strong toxin and form characteristic colonies. By means of toxin-antitoxin tests it has been shown that Strains III, IV, VII and IX belong to one homologous group, and that Strains VI, VIII and X belong to another. The relationship of Strains I, II and V has not been determined, as the toxin produced is very weak.

Spores develop most rapidly and abundantly in a culture medium made of sheep brains, cooked slightly with a little water and squeezed through cheese cloth. The medium is oil stratified in the tubes. In these cultures the spores are present in the fluid portion and also embedded in the brain tissue. In broth cultures, spores are formed very slowly, and for this reason only two experiments have as yet been performed with broth spores.

Each culture was examined in a smear, stained by Gram's method, and only those cultures were used that were found to contain free spores. Cultures showing only terminal spores were not used.

TECHNIC

Spore Mixtures.—For the broth spore experiments (Tables 1 and 2), about 1 c.c. of the sediment from the bottom of the broth culture was pipetted off with a sterile pipet into a sterile test tube and the volume made up to about 6 c.c. with sterile salt solution.

For the Arnold sterilizer experiment (Table 4), about 2 c.c. of the brain culture were pipetted off with a sterile pipet into a sterile test tube and diluted with about 10 c.c. of sterile salt solution. When the material was boiled in an open beaker (Table 3), about 10 c.c. of the brain culture were mixed in a sterile beaker with about 50 c.c. of sterile salt solution, and loss by evaporation was made up by the addition from time to time of hot sterile distilled water so that the boiling did not stop or the concentration of the fluid change materially. For the autoclave experiments (Table 5) about 0.5 c.c. of a brain culture was placed in a sterile test tube. No salt solution was added.

Apparatus.—Water Bath: A deep pot of water was used for the water bath with a cover having holes through which the tubes were pushed down into the water. The level of the water in the bath was always well above the level of the spore mixture in the tubes.

Arnold Sterilizer: The tubes containing the spore mixtures were placed in a rack in a regular Arnold sterilizer with a double door. The door was necessarily opened for about three minutes during each inoculation period. This, however, was done in a very warm room.

Autoclave: This was of the horizontal type.

Inoculation.—Inoculations were made from the heated material at definite intervals as specified in the respective tables. In all but the autoclave and part of the beaker experiments the inoculations were made by means of small sterile pipets. A separate pipet was used for each inoculation. The amount of material transferred was about 0.1 c.c. This amount was increased somewhat in the inoculations made after the longer periods of heating. For the inoculations of the autoclaved spores, a platinum loop about one-fourth inch in diameter was used. The center of the loop was filled in with a coil of platinum wire to make a scoop so that a very rich inoculation was made. An ordinary platinum loop was used to make inoculations from the foam in the experiment of boiling the spores in an open beaker.

Mediums.—All inoculations were made into tubes of deep infusion or peptic digest agar, 2 per cent. glucose. The agar was boiled for twenty minutes and cooled to 47 C., at which temperature the tubes were inoculated. They were then at once thoroughly shaken and solidified in cold water. They were capped with a mixture of paraffin, beeswax and zinc oxid.

Incubation.—The cultures were incubated in an incubator which varied between 25 and 28 C.

Observation.—The cultures were observed each day for anaerobic growth and gas production. When growth appeared the cultures were examined under the dissecting microscope to determine whether the colonies were characteristic of the given strain of *B. botulinus.* This was done in order to rule out possible contamination with other organisms.

EXPERIMENTS AND RESULTS

Two experiments were performed in which spores from broth cultures were used. The spores were heated in a water bath. In the first experiment (Table 1) the temperature of the water bath was approximately at 80 C., and the temperature inside the test tubes was maintained between 79.5 and 81 C. during the two hours. In the second (Table 2) the water in the bath was kept actively boiling and the temperature in the test tubes was maintained at 100 C. throughout.

TABLE 1.—RESULTS OF EXPOSING FREE SPORES FROM BROTH CULTURES OF B. BOTULINUS TO A TEMPERATURE OF 80 C. IN A WATER BATH; CULTURES INCUBATED FOR SIX WEEKS *

Length of Exposure at Time of Inoculation, Minutes	Temperature in Test Tube at Time of Inoculation, C.	Strains					
		I	III	V	VI	VII	IX
Control unheated	....	⊕ 1 d	+ 1 d ⊕ 2 d	⊕ 1 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
5	80.5	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	⊕ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
10	80	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
15	80.5	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
20	79.5	+ 1 d ⊕ 2 d	....	⊕ 1 d	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d
30	81	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d	⊕ 1 d
40	80.5	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	⊕ 2 d	⊕ 1 d
60	80	⊕ 2 d	....	⊕ 2 d	⊕ 2 d	⊕ 4 d	⊕ 2 d
90	80	⊕ 2 d	....	⊕ 2 d	⊕ 2 d	⊕ 3 d	⊕ 2 d
120	80	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	⊕ 3 d	⊕ 3 d

* In the tables, + indicates growth; ⊕ indicates growth and gas. Arabic numerals followed by "d" indicate the number of days of incubation before growth and gas appeared in the agar cultures.

Normal cultures of *B. botulinus* in agar grow and produce gas in from twenty-four to forty-eight hours, the more thickly seeded cultures showing up more quickly than thinly seeded ones. In Table 1 it will be observed that the broth spores of five strains survived a temperature of 80 C. for two hours and that 90 per cent. of the cultures developed in from twenty-four to forty-eight hours, while the others showed up on the third or fourth day. It is evident, therefore, that the spores were practically uninjured by exposure to a temperature of 80 C. for two hours. Of the broth spores heated to 100 C. (Table 2), one strain survived after an exposure of fifteen minutes, another after twenty minutes, a third after thirty minutes and a fourth after sixty minutes. The control cultures and some of those inoculated after five and ten minutes' exposure developed in normal time. But the development of the other cultures was retarded. The incubation period was increased in direct proportion to the length of time the spores were exposed to the heat.

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[1] Dr. E. C. Dickson has a report of these cases in process of publication.

TABLE 2.—RESULTS OF EXPOSING FREE SPORES FROM BROTH CULTURES OF B. BOTULINUS TO A TEMPERATURE OF 100 C. IN A WATER BATH; CULTURES INCUBATED FOR THREE MONTHS

Length of Exposure at Time of Inoculation, Minutes	Temperature in Test Tube at Time of Inoculation, C.	Strains			
		V	VI	VII	IX
Control unheated	...	+ 1 d ⊕ 3 d	+ 1 d ⊕ 3 d	+ 1 d ⊕ 3 d	+ 1 d ⊕ 3 d
5	100	⊕ 1 d	⊕ 1 d	+ 6 d ⊕10 d	+ 3 d ⊕ 8 d
10	100	+ 1 d ⊕ 2 d	⊕ 4 d	+10 d ⊕15 d	⊕ 5 d
15	100	+ 5 d ⊕ 6 d	+10 d ⊕19 d	......	+ 5 d ⊕ 8 d
20	100	⊕ 8 d	......	⊕26 d	⊕ 6 d
30	100	+10 d ⊕19 d	......	......	+ 6 d ⊕ 8 d
40	100	......	......	......	+ 8 d ⊕12 d
60	100	......	......	......	+15 d ⊕17 d
90	...	......	......	......	......
120	...	......	......	......	......

These two experiments parallel two which were made by Dr. E. C. Dickson[2] and myself last spring with spores from brain cultures. It was found at that time that spores from brain cultures of six strains survived a temperature of 80 C. for three hours and that growth appeared after a practically normal incubation period, and also that spores from brain cultures of five strains, exposed to a temperature of 100 C. for two hours, survived for the entire two hours, while the sixth strain survived for one and one-fourth hours. The negative cultures were not kept more than three weeks. The incubation period of the spores following exposure to 100 C. was increased in direct proportion to the length of time of exposure. Comparing these data with those in Table 2, it is evident that broth spores are somewhat less resistant than those grown in brain mediums, but that they are more resistant than has been hitherto reported.

In all experiments in which spores were exposed to temperatures of 100 C. or over, the subsequent development of the heated spores was more or less retarded (Tables 2, 3, 4 and 5). The longest period of incubation recorded in these charts is fifty-three days (Table 5, Strain X).

The cultures remain apparently sterile for days. No growth is visible even with the use of a dissecting microscope. Then suddenly, within a twenty-four to forty-eight hour period, normal growth and gas production take place. There is a good deal of variation in the resistance of the spores of the different strains to heat and the amount of growth inhibition caused by exposure for any given time. For any one strain, however, the amount of inhibition varies directly with the length of exposure. An examination of the incubation periods noted for each of the cultures in the accompanying tables shows that there are very few exceptions to this rule. Several occur in Table 1; but, as I have already stated, all the cultures in this experiment developed in practically normal time, and the variations that occurred are due to difference in the thickness of seeding rather than to the effect of the heat. In Table 3, Strain VIII, there is a very decided break in the sequence between the spores heated for 150 minutes and those heated for 180 and 210 minutes. But, as will be explained more fully later, the early development of the 180 and 210 minute cultures was probably due to the accidental admixture of foam from the side of the beaker which had not been subjected to the same degree of heat as the liquid at the bottom.

The recognition of the fact that the incubation period of the spores of *B. botulinus* is very much lengthened following exposure to temperatures of 100 C. and over is very important. It means that in testing for the thermal death point all cultures of heated spores that do not show any growth must be incubated for months before they are finally reported sterile. Therefore, whenever negative results are noted in the accompanying tables it must be *understood* that they represent incomplete data and do not indicate the thermal death point of the spores, for none of the cultures have been incubated for more than three months at the time of this writing.

TABLE 3.—FREE SPORES FROM BRAIN CULTURES OF B. *BOTULINUS* BOILED IN A BEAKER OVER A FREE FLAME

Strain IV		Length of Boiling	Strain VI		Strain VIII	
Length of Boiling	Foam and *Liquid*		Liquid	*Foam from Side of Beaker*	Liquic	Foam on Surface of Liquid
Control unheated	⊕ 1 d	Control unheated	⊕ 2 d	No cultures	⊕ 2 d	No cultures
Just boiling after 4 min. over flame	⊕ 1 d	Just boiling after 5 min. over flame	⊕ 2 d	No cultures	+ 2 d ⊕ 4 d	No cultures
Boiled 2 minutes	⊕ 1 d	Boiled 5 minutes	⊕ 2 d	⊕ 2 d	+ 2 d ⊕ 4 d	No cultures
5 minutes	⊕ 1 d	10 minutes	⊕ 2 d	⊕ 2 d	+ 5 d ⊕ 6 d	No cultures
10 minutes	⊕ 1 d	15 minutes	⊕ 2 d	⊕ 2 d	+ 4 d ⊕ 6 d	No cultures
20 minutes	⊕ 2 d	20 minutes	⊕ 2 d	⊕ 2 d	+ 4 d ⊕ 6 d	No cultures
30 minutes	⊕ 2 d	30 minutes	⊕ 2 d	⊕ 2 d	⊕ 4 d	⊕ 4 d
60 minutes	+ 2 d ⊕ 3 d	60 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	+ 4 d ⊕ 7 d	No cultures
90 minutes	⊕ 1 d	90 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	⊕ 18 d	⊕ 6 d
		120 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	⊕ 18 d	No cultures
		150 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	⊕ 18 d	No cultures
		180 minutes	⊕ 3 d	⊕ 2 d	⊕ 5 d	+ 18 d ⊕ 20 d
		210 minutes	No cult.	No cultures	+ 8 d ⊕ 11 d	⊕ 4 d *

* Foam from side of beaker.

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[2] Dr. Dickson has a report of these experiments in process of publication.

It is also very doubtful whether fractional sterilization on three successive days could sterilize spores whose development is so inhibited by exposure to heat. Even exposure for fifteen minutes to a temperature of 100 C. will inhibit certain spores so that they will not develop until the fourth to the tenth day. Two experiments have been performed to test fractional sterilization. In both cases, spores from brain cultures were used and the spores were exposed to a temperature of 100 C. for one hour on each day. In the first experiment, two strains were used, and were heated on three successive days. Both strains survived after the third day's heating. The second time, six strains were tested, and they were sterilized on three successive days and again on the eighth day. Five strains survived the fourth period of heating on the eighth day. The other strain survived after the first period of heating, but so far the later cultures show no growth. The technic of these experiments was not, however, entirely satisfactory, and for that reason a detailed report of them will be reserved until there are more data.

TABLE 4.—RESULTS OF HEATING FREE SPORES FROM BRAIN CULTURES OF B. BOTULINUS IN THE ARNOLD STERILIZER; CULTURES HAVE BEEN INCUBATED FOR THREE MONTHS

Length of Exposure	Strains								
	I	II	III	IV	V	VI	VII	VIII	IX
30 min.	⊕ 4 d	+ 3 d ⊕ 4 d	.....	+ 3 d ⊕ 4 d	⊕ 4 d	⊕ 4 d	+ 4 d ⊕ 6 d	⊕ 3 d	⊕ 3 d
60 min.	.....	⊕ 8 d	.....	.....	⊕ 8 d	.....	+ 6 d ⊕ 8 d	⊕ 4 d	⊕ 4 d
90 min.	.....	⊕ 6 d	.....	.....	⊕ 10 d	.....	+ 6 d ⊕ 8 d	⊕ 4 d	⊕ 4 d
2 hrs.	.....	+ 13 d ⊕ 18 d	.....	.....	⊕ 13 d	.....	⊕ 8 d	+ 4 d ⊕ 6 d	+ 4 d ⊕ 6 d
2½ hrs.	.....	.....	.....	.....	.....	.....	⊕ 10 d	⊕ 6 d	+ 6 d ⊕ 8 d
3 hrs.	.....	.....	.....	.....	.....	.....	⊕ 16 d	+ 11 d ⊕ 12 d	⊕ 8 d
4 hrs.	.....	.....	.....	.....	.....	.....	.....	+ 18 d ⊕ 20 d	+ 17 d ⊕ 18 d
5 hrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....
6 hrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....

It has been asserted that the blanching of the fruit and vegetables for five minutes in boiling water, as recommended in the cold pack (one period) method of canning, helps to sterilize the material. Also, many housewives can their fruit and vegetables by boiling them in an open kettle and packing them, hot, into clean jars. To test the reliability of these methods for *B. botulinus* spores from brain cultures of three strains were boiled in an open beaker (Table 3). Strain IV was boiled for ninety minutes, Strain VI for three hours, and Strain VIII for three and one-half hours. It was found that as soon as the brain mixture began to boil, a thick foamy scum formed on the surface of the mixture. In a few minutes this broke, leaving a clear portion in the center. For Strain IV, samples of both foam and liquid were taken each time. For Strains VI and VIII, duplicate cultures were made of the liquid and the foam. The foam inoculations of Strain VI were made from the foam adhering to the side of the beaker. For Strain VIII, the foam was taken from the surface of the fluid, except for the 210 minute inoculation, which was made from foam adhering to the side of the beaker.

Strain IV was uninjured by boiling for ninety minutes. Strain VI was uninjured by boiling for three hours, and Strain VIII survived for three and one-half hours, although the development of the spores was much retarded. The four samples of foam from Strain VIII show that the spores in the foam that adhered to the side of the beaker were not subjected to so much heat as those on the surface of the liquid, since the spores in the foam that was taken from the side of the beaker after 210 minutes developed much more quickly than those in the foam taken from the surface of the liquid after ninety and 180 minutes. The comparatively early development of the cultures made from the liquid after 180 minutes' and 210 minutes' boiling is probably due to the accidental admixture of some of the material from the side of the beaker at the time when hot water was added to make up loss by evaporation.

Blanching, therefore, cannot be relied on to kill or even materially injure spores of resistant strains of *B. botulinus*. Its value is as a cleansing agent. And to be effective it should be done before the fruit or vegetables are cut, for spores lodged on the skin may be crushed by the cutting process into the pulp, where they would be protected. The method of canning by boiling in an open kettle and then packing, hot, in the jars and sealing cannot be relied on to sterilize material contaminated with hardy strains of *B. botulinus* unless the boiling be continued for a good deal over four hours. A scum of foam always forms on the surface of boiling fruit or vegetables, and this may contain viable spores for a very long time.

Nine strains were tested in the Arnold sterilizer (Table 4) and ten in the autoclave (Table 5). The spores were obtained from the same set of brain cultures. A set of transplants in agar were made and incubated in order to test out the purity of the cultures.

TABLE 5.—RESULTS OF STERILIZING FREE SPORES FROM BRAIN CULTURES OF B. BOTULINUS IN THE AUTOCLAVE; CULTURES HAVE BEEN INCUBATED FOR THREE MONTHS

Pressure and Time	Time Required for Pressure to Rise, Min.	Time Required for Pressure to Fall, Min.	Strains									
			I	II	III	IV	V	VI	VII	VIII	IX	X
5 lbs.												
5 min.	5	6	⊕1d	+1d ⊕5d	...	+1d ⊕2d	+1d ⊕2d	+1d ⊕4d	⊕4d	⊕3d	⊕3d	⊕3d
10 min.	4½	5	...	...	...	...	...	⊕16d	...	+12d ⊕14d	⊕12d	⊕12d
20 min.	5	4½										
10 lbs.												
5 min.	12	10	...	...	...	...	...	....	...	....	....	⊕16d
10 min.	12½	10										
20 min.	10	13	...	...	...	...	...	....	...	....	....	⊕50d
15 lbs.												
5 min.	22½	13										
10 min.	18	16	...	...	...	...	...	....	...	....	....	⊕53d
20 min.	8½	12½										

As these showed typical growth characteristics, no special controls were made for either the Arnold or the autoclave series.

The cultures of Tables 4 and 5 have been incubated for three months. More than half of the cultures are still negative, and none have developed since the fifty-third day. These tables, therefore, represent something approximating the thermal death point of the spores, though some further development may take place.

Spores of Strains VIII and IX survived in the Arnold sterilizer at a temperature of 100 C. for four hours. Therefore, one long period of heating, such as is recommended in the cold pack method of canning, is not a reliable method of killing spores of *B. botulinus.* The internal temperature of jars of fruit and vegetables does not reach 100 C. for about an hour after the surrounding water begins to boil. For these reasons even a period of five hours in boiling water would not sterilize the contents of jars, contaminated with spores of the more highly resistant strains of *B. botulinus.*

A month ago I received a report from a woman who canned a number of jars of string beans a year ago. Nearly the whole pack spoiled in the course of a few weeks. She stated that the beans were cut in pieces, washed carefully in water, packed in the jars, and the jars put in a boiler of cold water, the level of the water being up to the necks of the jars. The water was then brought to a boil and kept boiling for four and one-half hours. Whether any of the spoilage was due to *B. botulinus* is, of course, not known.

The data thus far obtained from the autoclaved spores show that a pressure of 15 pounds for a period of ten minutes will not kill all spores of *B. botulinus.*

There is apparently some variation in resistance to heat between spores of different cultures of the same strain. Strains I, III, IV and VI seem to be less resistant sometimes than at other times. The age of the cultures used, however, varied a good deal, because spores form more quickly in some cultures than in others. Strains VII, VIII, IX and X give more nearly uniform results. Strains VIII, IX and X, which are the most recently isolated strains, are the most highly resistant to heat.

CONCLUSIONS

1. Free spores of *B. botulinus,* grown in either broth or brain cultures, are highly resistant to heat.

2. Spores grown in brain cultures are more resistant than spores grown in broth cultures.

3. Exposure of the spores to a temperature of 100 C. or more inhibits the development of the spores of *B. botulinus* so that the incubation period is very much increased.

4. The method of canning by boiling the fruit or vegetables in an open kettle and sealing in clean jars cannot be relied on to sterilize material that is contaminated with spores of the more resistant strains of *B. botulinus,* since spores of *B. botulinus* will survive in boiling liquid for three and one-half hours; and in the foam that gathers on the side of the kettle they may live for a much longer period.

5. The sterilizing processes of the cold pack (one period) method are not sufficient to kill spores of *B. botulinus.* Blanching in boiling water for five minutes is effective as a cleansing agent, but it does not materially injure spores of resistant strains of *B. botulinus.* One period of heating in boiling water for five hours or less will not sterilize the contents of jars if they are contaminated with the more resistant spores of *B. botulinus.*

6. Fractional sterilization on three successive days is of doubtful value because, after exposure to a temperature of 100 C. for from fifteen to sixty minutes, the germination of the spores is retarded so that they do not develop before the third sterilization period.

7. Pressure canning is the only method of sterilization that at present can be considered safe. But a pressure of 5, 10 or 15 pounds for ten minutes will not kill the more resistant spores of *B. botulinus.* Therefore a comparatively long sterilization period must be used.

8. With our present knowledge, the best way to guard against spoilage of canned goods due to *B. botulinus* is to prevent spores of this organism from entering the jars. The source of contamination is not at present known.[3] It is quite certain that the organism is not present under the skin of perfectly sound fruit and vegetables that are not overripe. Therefore, fruit and vegetables of this sort should be used. Bruised and partially spoiled material, if it is fit to use at all, should be consumed at once and not stored for future use. The fruit and vegetables should be thoroughly cleaned before they are peeled or cut in order that no foreign matter may be crushed into the pulp where it would be protected. It is possible that the spores of *B. botulinus* get into the jars from some source in the kitchen. For this reason it is essential that the hands and all utensils be made as clean as possible and that flies be eliminated. The use of sound fruit and clean methods of handling are the most important factors in canning, so far as *B. botulinus* is concerned, because the sterilization processes in common use will not kill all the spores.

9. It is important that housewives be warned of the danger of *B. botulinus* spoilage so that they may examine every jar carefully when it is opened for table use. The contents of the jar must not be tasted to "see if it is spoiled." The smallest taste will be fatal if the toxin is strong. There are three signs of spoilage from *B. botulinus,* any one of which is sufficient to condemn the jar. These are:

(*a*) Gas bubbles in the jars, the tops of the jars blown, and a squirt of liquid as the top is unscrewed.

(*b*) An odor somewhat resembling rancid cheese.

(*c*) A mushy or disintegrated appearance of the solid parts of the contents of the jars.

10. The toxin that *B. botulinus* produces after several weeks or months growth in a sealed jar may be entirely destroyed by boiling for five minutes, although the spores of *B. botulinus* are not killed by this treatment. It is the toxin and not the spores that produces illness, for the bacilli do not produce toxin when taken into the body. Therefore, any canned goods that are in the least suspicious should be emptied into a kettle and boiled for five minutes. They can then be eaten without danger.

11. Since *B. botulinus* produces toxin only in material that has been sealed in an air-tight container for a week or more, and since it produces no toxin in the human body, there is no danger of botulism from uncooked fruit or vegetables or from those freshly cooked.

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[3] I am collecting material from places where cases of botulism occurred during the past winter in an effort to secure data as to the source of the contamination.

The Lacteal Goddess.—If civilized peoples were to lapse into the worship of animals, the cow would certainly be their chosen goddess. What a fountain of blessing is the cow! She is the mother of beef, the source of butter, the original cause of cheese, to say nothing of shoehorns, hair combs and upper leathers. A gentle, amiable, ever-yielding creature, who has no joy in her family affairs that she does not share with man. We rob her of her children, that we may rob her thereafter of her milk; and we only care for her when the robbery may be perpetrated.—Charles Dickens.

OUTBREAK OF MENINGITIS AT NORFOLK, VA.*

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The conditions which influence the spread of contagious diseases are so numerous that it is impracticable to enumerate them. There are certain important ones, however, which a study of the recorded epidemics of cerebrospinal meningitis has shown to be not only potent but almost always coexistent. These are the bringing together of large numbers of people from widely separated areas, overcrowding, and unusually rigorous weather. Last winter these conditions existed to an exaggerated extent in Norfolk. The government activities in this locality incident to the war brought to our immediate vicinity about 50,000 additional people from every state of the Union, who are engaged in all of the pursuits necessary to building and construction on a large scale. Besides these there also came large numbers of officers and enlisted men of the Army and Navy with their families. This increased our population from about 100,000 to 150,000 in a little more than six months. The problem of housing this number was serious and resulted in uncomfortable crowding. In addition, we suffered the most prolonged season of severe weather that has visited this community for forty years.

GEOGRAPHY OF THE CITY

The city and suburbs comprising the territory under consideration occupy approximately 20 square miles. One large portion (Berkley and South Norfolk) is separated from the city proper by a branch of the Elizabeth River. In this section is located St. Helena, the naval training station. Six and one-half miles to the northwest of the city is the new Hampton Roads naval base, while between this point and the city is the new Bush Bluff Army base. Across the river to the south lies the city of Portsmouth, where are situated the Naval Hospital, the receiving hospital for the Atlantic fleet, and the Norfolk Navy Yard.

STATISTICS

During the period from January 1 to May 15, 1918, there occurred in the city proper, and immediately contiguous suburbs, forty cases of cerebrospinal meningitis. The epidemiology of this outbreak is of sufficient interest to justify an analysis. The wide distribution of the cases is shown on the map. Grouping is conspicuously absent. Twenty-two of the forty patients were male and eighteen female; thirty-one were white and nine colored; nineteen were over 15 years of age and twenty-one under; twenty-two, or 55 per cent., died and eighteen, or 45 per cent., recovered.

Twenty-one patients were treated in hospitals and nineteen at home. Of the twenty-one treated in hospitals, eighteen were treated at the City Detention Hospital, one at the Naval Base Hospital and two at St. Vincent's Hospital. Of the eighteen treated at the City Detention Hospital, ten recovered.

Several cases occurred after this report was closed, all of which ended in recovery. This would alter the death rate materially.

CLINICAL FEATURES

The severity of the cases varied from mild to fulminant. Death often occurred in the latter in a few hours after the onset. As would be supposed, the predominant symptoms and those occurring with greatest uniformity were headache, vomiting and retraction. The type of headache as described by those old enough to express their symptoms was of the vertex, frontal or occipital, and while the frontal type prevailed, there were several cases in which the pain was described as distinctly bitemporal (ventricles). Vomiting was a common symptom and was projectile, rarely accompanied by any nausea. Stiffness of the neck with more or less retraction was present in every case. A number suffered from pains in the back and limbs, so pronounced in some instances that a diagnosis of grip was made. Fever was uniformly present, though charts were not kept in a sufficient number of cases to enable us to trace a typical curve.

Convulsions occurred in nine cases, in five of which the patients died. Only two adults had convulsions. Maniacal delirium was present in nine cases, in five of which the patients died. Rash, either petechial or purpuric, was observed in fourteen cases, in ten of which the patients died. In several cases described as mild, the patients developed basilar conditions and died, while in several other cases described as severe or violent, the patients recovered promptly. In the fulminant cases, the early use of serum did not appear to influence the course or termination. Intravenous injections of serum were not used except in Case 25, in which the patient was treated at the Naval Base Hospital.

The reflexes usually described as present in the various types of meningitis were exceedingly variable in their appearance. Not one sign, with the exception of retraction of the neck, was constant enough in the early stages to be of diagnostic value. Most of the patients had one or more of the signs or reflexes present at some time during the course of the disease, most of them appearing or disappearing between daily examinations. In all cases there was a definite facies, which was apparent to the practiced observer on entering the room. This consisted in a peculiar fixed stare (very slight in some cases), slight stiffness of the neck and dilated pupils. To one accustomed to seeing this form of meningitis, this facies is almost pathognomonic.

LABORATORY DIAGNOSIS

Lumbar puncture revealed *Diplococcus intracellularis* in thirty-six cases. In three cases the diagnosis was clinical only (no lumbar puncture being performed), while in one case the spinal fluid was negative, but the organisms were found in a blood smear in abundance (Case 32[1]). In two other cases also blood smears showed organisms. These demonstrations occurred early in the course of the disease, which points strongly to the disease being a bacteremia before it became localized in the membranes of the brain and cord. One case showed a mixed infection of *Diplococcus intracellularis* and *Streptococcus mucosus* (Case 2).

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* Owing to lack of space, this article is abbreviated in The Journal by the omission of case reports and a map showing the distribution of cases. The complete article appears in the reprints, a copy of which may be obtained on application to the authors.

[1] This case will be reported in full separately by Dr. D. P. West of Norfolk, Va., the attending physician.

TREATMENT

In every case treated with serum, commercial stock serum was used. The intraspinal method alone was employed. We regret that intravenous injections also were not given in several of the violent cases. In thirty-three cases in which serum was given, the average number of injections was five. One patient refused treatment and recovered. Another received one injection, refused further treatment and recovered. The average dose administered to adults was 30 c.c.; that to children, 15 c.c. No attempt was made to inject as much serum as the fluid removed (Sophian).

Five died without treatment, one of these because of the fulminant nature of the case, the others because of late diagnosis. One died of anaphylactic shock, five days intervening between the last two injections (Case 28). One died of intracranial pressure (Case 2). Three developed flaccid paralysis of the neck muscles while under treatment, one of whom recovered. One developed hemiplegia and recovered without permanent paralysis. So far as is known, of the patients that recovered, not one has been left with a stigma.

As to the frequency of doses, we have been guided by several factors, to wit: (1) by the improvement of symptoms; (2) by the turbidity of the fluid withdrawn (gradually clearing after first increasing cloudiness following the initial dose of serum); (3) by the bacteriology (the organisms first becoming entirely intracellular and finally disappearing), and (4) by the cytology (the cells first being polymorphonuclear, then mononuclear, and finally diminishing in number).

EPIDEMIOLOGY

The principal interest in this outbreak centered around the epidemiology. Attention has been called to the proximity of the various government activities to the city. Practically all of the civilian employees of the government live in the residential area of the two cities of Norfolk and Portsmouth. A description of this outbreak has to do only with what is geographically Norfolk; but the same conditions exist in Portsmouth. There are few residences in this section that now have no government employees lodging in them.

During the period from May 21, 1917, to June 1, 1918, the report of the Naval Hospital shows the admissions of cerebrospinal fever patients to be 131. This included admissions from St. Helena, the naval operating base, marine barracks, ships and stations, and also those cases developing in the hospital. The

FINDINGS IN FORTY CASES OF MENINGITIS

Case	Race	Sex	Age	Date of First Symptom	Symptoms	Date of First Puncture	Bacteriology of Spinal Fluid	Number of Treatments	Average Serum Injected, C.c.	Result	Presumed Source	Rash	Type
1	W	F	22	Jan. 4	Violent frontal headache and vomiting; rigidity of neck and retraction; maniacal delirium; petechial eruption	Jan. 6	Positive	5	30	Died Jan. 10	Was visited one week previous by fiancé from Camp Jackson, where meningitis was *prevalent*; reports showed him to be negative	Petechial	Violent
2	W	M	4 mo.	Jan. 11	Retraction of neck and general spasticity	Jan. 13	Positive; also *Strep. mucosus*	2	5	Died Jan. 14	Unknown....................	....	Mild
3	C	M	?	?	Found unconscious........	Jan. 9	Positive	0	0	Died Jan. 10	Worked at naval base.......	....	Violent
4	W	M	37	Jan. 11	Headache, retraction and petechial rash	Jan. 15	Positive	1	30	Died Jan. 29	Worked at naval base.......	Petechial	Severe
5	W	F	9	Jan. 15	Headache, retraction, maniacal delirium, repeated convulsions	Jan. 16	Positive	6	15	Recovery	Lived near gate of St. Helena training station; was in habit of talking and playing with sailors	....	Violent
6	W	F	3	Jan. 23	Headache, vomiting, constipation, convulsions	Jan. 25	Positive	1	15	Died Jan. 26	Father and uncle worked at naval base	....	Violent
7	W	F	7 mo.	Jan. 27	Sudden onset; repeated convulsions	....	....	..	..	Died Jan. 27	Father, *ensign* in Navy; stationed at St. Helena; see Case 22	....	Violent, fulminant
8	C	F	15	Jan. 22	Headache, myalgia, restlessness, retraction	Jan. 26	Positive	1	15	Died Jan. 29	Two men in same house worked at Army base	....	Moderate
9	W	M	56	Jan. 26	Headache, vomiting, stiffness of neck, stupor	Jan. 26	Positive	6	30	Recovery	Rent collector; as such came in contact with employees at Army and Navy bases	....	Moderate
10	W	F	5	Jan. 27	Headache, retraction, stupor	Jan. 28	Positive	6	15	Recovery	Unknown....................	....	Moderate
11	C	F	26	Jan. 27	Headache, repeated convulsions	Jan. 29	Positive	1	30	Died Jan. 30	Husband worked at naval base	....	Violent
12	W	M	4½	Jan. 25	Headache, vomiting, delirium, retraction, petechial eruption	Jan. 30	Positive	6	15	Recovery	Father and boarder in house worked at naval base	Petechial	Moderate
13	W	F	2	Jan. 28	Bronchitis, general rigidity, retraction	Jan. 30	1st neg., 2d pos.	6	15	Recovery	Father worked at Navy yard	....	Moderate
14	W	M	44	Jan. 28	Chill, myalgia, projectile vomiting, delirium, retraction, purpuric rash, headache	Jan. 31	Positive	1	30	Died Jan. 31	Two men in same house worked at naval base	Purpuric	Fulminant
15	W	M	16	Feb. 1	Headache, vomiting, retraction	Feb. 3	Positive	6	30	Recovery	Father and brother-in-law worked at naval base; 11 contacts, 6 positive	....	Mild
16	W	F	10	Feb. 2	Rigidity, retraction, repeated convulsions	Feb. 4	Positive	3	15	Died Feb. 6	Brother-in-law (living in home) sailor in U. S. N.; father worked at marine railway; 8 contacts, 1 pos.	....	Severe
17	W	M	15	Feb. 2	Headache, general myalgia, retraction, delirium, vomiting	Feb. 6	Positive	3	15	Recovery	Father worked at marine railway	....	*Mild*
18	W	M	17	Feb. 14	Headache, delirium, retraction	Feb. 15	Positive	5	40	Died Feb. 18	Father worked at Navy yard; brother, marine railway; sailors frequent visitors to home	....	Severe
19	W	F	26	Feb. 16	Headache, sore throat, myalgia, delirium, purpuric eruption, retraction	Feb. 17	Positive	1	15	Died Feb. 17	Two men living in house worked at naval base; one of these positive culture	Purpuric	*Fulminant*

FINDINGS IN FORTY CASES OF MENINGITIS—Continued

Case	Race	Sex	Age	Date of First Symptom	Symptoms	Date of First Puncture	Bacteriology of Spinal Fluid	Number of Treatments	Average Serum Injected, C.c.	Result	Presumed Source	Rash	Type
20	C	F	13	Feb. 14	Headache, general rigidity, retraction	Feb. 18	Positive	6	15	Died March 27	Father worked at Army base; mother worked at restaurant patronized by sailors and soldiers	....	Mild
21	W	M	7	Feb. 16	Headache, vomiting, retraction and general rigidity	Feb. 18	Positive	0	0	Recovery	Father and brother worked at naval base	....	Mild
22	W	F	27	Feb. 19	Headache, retraction, myalgia	Feb. 21	Positive	23	30	Recovery	Husband ensign in U. S. N.; see Case 7	Petechial	Severe
23	C	F	13	March 1	Headache, vomiting retraction	March 1	Positive	2	15	Recovery	Father worked at naval base	....	Mild
24	C	M	21	Feb. 28	Headache, general malaise, rigidity, retraction, delirium	March 2	Positive	9	30	Recovery	Employed at naval base; conversed with convalescent meningitis patient	....	Mild
25	W	M	26	March 14	Headache, malaise, stupor, retraction	March 14	Positive	10	30	Died March 25	Worked at naval base.......	Petechial	Severe
26	W	M	22	March 15	Headache, vomiting, retraction	March 21	Positive	6	15	Died March 30	Worked at naval base.......	....	Severe
27	W	F	46	Jan. 6	Headache, vomiting, myalgia, retraction, delirium, blindness	Jan. 8	Positive	6	30	Died Jan. 11	Attended wedding reception at which were present Army and Navy officers and enlisted men	Petechial	Fulminant
28	W	M	2	Jan. 16	Convulsions, vomiting, retraction, delirium, petechial and purpuric rash	Jan. 18	Positive	6	15	Died Feb. 5	Father and uncle worked at naval base	Purpuric	Violent
29	W	F	3	Jan. 14	....	Jan. 24	Positive	10	15	Died Feb. 22	Unknown.....................	Petechial	Mild
30	W	M	45	Jan. 21	Headache, myalgia, retraction, stupor, *petechial* rash	Jan. 24	Positive	8	30	Recovery	Worked at marine railway...	Petechial	Moderately severe
31	W	M	8	Dec. 24	Headache, vomiting, retraction, petechial rash	Jan. 28	Positive	6	15	Recovery	Unknown.....................	Petechial	Mild chronic positive
32	W	M	6	Jan. 21	Repeated convulsions, purpuric rash	Jan. 21	Negative	0	0	Died Jan. 21	Unknown.....................	Purpuric	Fulminant
33	W	M	6	May 17	Vomiting, abdominal pain, retraction	May 18	Positive	5	15	Recovery	Boarder in same home; worked at naval base	....	Mild
34	C	M	10	April 7	Headache, retraction.......	April 8	Positive	4	15	Recovery	Unknown.....................	....	Mild
35	W	M	1½	April 7	General indisposition, repeated convulsions, retraction	April 9	Positive	3	10	Recovery	Father worked at shipyard and came in contact with men from naval base	....	Mild
36	W	F	7	April 11	Headache, convulsions. tonsils red, cervical adenitis and abdominal tenderness	April 12	1st neg. 2d pos.	6	15	Recovery	Father worked at naval base	....	Severe
37	W	M	18	April 1	Headache, retraction.......	April 6	1st neg. 2d pos. April 16	1	15	Recovery	Patient and father worked at naval base	....	Mild
38	C	F	53	March 24	Maniacal delirium, retraction, general rigidity, moribund when seen	0	....	0	0	Died March 26	Unknown.....................	....	Violent
39	W	F	35	April 4	Bronchitis, maniacal delirium, retraction, purpuric rash	0	....	0	0	Died April 6	Unknown.....................	Purpuric	Fulminant
40	W	M	8 mo.	April 6	Muscular twitching, retraction, purpuric rash	April 9	Positive	1	15	Died April 9	Members of family attended dance at which were Army and Navy enlisted men	Purpuric	Violent

number of carriers is not stated. From January 1 to May 1, twenty-nine patients were cared for at the hospital at the Hampton Roads naval operating base, and 300 carriers were isolated. Men from all these stations come to the city and mingle freely with the population.

At the beginning of the outbreak, the laboratory of the Norfolk City Board of Health was not in a position to do the nose and throat culture work, the bacteriologist having recently been drafted. Later on the United States Public Health Service sent Dr. George Lake to assist in this work. At first, culture medium was hard to secure, and so even this work was imperfectly done for a time. Nevertheless, a large number of cultures were made in the houses where cases occurred, with varying results. A number of positive cultures were obtained, but a large number of those from persons suspected of having carried the disease were negative. The facts in the case will be stated, however, for what they are worth. They are highly suggestive. The accompanying table suggests the presumed source better than we can describe it. Of course, nothing absolutely conclusive can be deduced from this study, except in cases in which positive cultures were secured; yet, under the circumstances, we are forced to the conclusion that from all these various government activities there were many carriers that were never detected.

In twenty-six cases there was an apparently definite connection with either the naval base or the navy yard. In one instance the patient's mother was a waitress in a restaurant patronized largely by enlisted men. In one case the patient attended a reception and came in contact with Navy men. In the last instance the connection was very indirect but suggestive. Members of the patient's family danced with enlisted men at a reception. No cultures were made in this case.

It is quite apparent that this outbreak originated from without. There were no centers of infection in the city. With the single exception of mother and child, there was no connection whatever between the patients, none of them even knowing each other.

CLINICAL OBSERVATIONS

1. We treated only the patients under 15 years of age, but observed most of the others.

2. Intensive treatment should be conducted early.

3. Since the disease probably starts as a bacteremia, we think it advisable, at least in the early stages, to use serum intravenously as well as intraspinally.

4. Patients that are not well clinically after seven days' treatment rarely recover ultimately.
5. It is rarely necessary to give as much serum in the spine as the fluid withdrawn, 30 c.c. being a good average adult dose, and 15 c.c. a good child's dose.
6. Prolonged serum treatment frequently keeps the temperature raised without doing good.

REPORT OF CASES

Case 1.—*History.*—D. C., white woman, aged 22, was taken sick in the evening of January 4 with violent frontal headache and vomiting, followed within twenty-four hours by maniacal delirium, rigidity of the neck, marked retraction and diffused petechial rash. Lumbar puncture was done January 6; the fluid was cloudy and positive for meningococci. Treatment was begun at once, and she was given a daily dose of 30 c.c. of antimeningococcus serum on five consecutive days. There was no improvement, and death occurred, January 10, without the patient having regained consciousness.

Source.—The patient had been visited five days previous to the onset of illness by her fiancé, a young soldier from Camp Jackson, where there had been a number of cases of meningitis. Culture from the throat of this soldier was negative.

Case 2.—*History.*—Baby C., white boy, aged 4 months, was convalescing from bronchopneumonia of several weeks' duration, when, Janary 11, the attending physician detected stiffness of the neck. The child was seen in consultation at 8 p. m., January 13, at which time there was a marked degree of spasticity. Lumbar puncture was done immediately; 15 c.c. of slightly cloudy fluid were removed, and 6 c.c. of antimeningococcus serum administered. Examination of the fluid revealed a mixed infection of meningococci and *Streptococcus mucosus.*

On the morning of January 14, the patient seemed better. A second puncture was done, but not more than 2 c.c. of turbid fluid were obtained. On account of the urgency of the case, and in spite of the small amount of fluid withdrawn, the consultant (one of the authors) decided that more serum was indicated. At this time some difficulty was experienced in getting more than 2 c.c. of serum to flow into the canal by gravity, and only with the aid of slight pressure, by means of a rubber bulb, was it possible to introduce more than 4 c.c. The patient did well for ten minutes after the administration of the serum; he then went into a state of collapse suddenly and became cyanotic, with labored respiration. An immediate attempt was made to relieve the intracranial pressure, but death occurred before this was successful.

Source.—We were unable to trace any source of infection. Cultures from the nose and throat of all contacts were negative.

Case 8.—*History.*—L. M., colored girl, aged 15 years, was taken sick, January 22, with headache, backache, fever and restlessness. These symptoms continued, and on January 26 there was a marked degree of opisthotonos. Lumbar puncture was done on this date and 60 c.c. of slightly turbid fluid, under increased pressure, were removed. The fluid was positive for meningococci. Thirty c.c. of antimeningococcus serum were administered. There was no improvement, death occurring, January 29.

Source.—Two men living in the same house worked at the Army base. Cultures from the noses and throats of seven contacts were negative.

Case 9.—*History.*—M. S., white man, aged 56, was taken ill, January 26, with severe headache, vomiting and stiffness of the neck. He was seen by his physician a few hours later, at which time there was marked apathy, amounting to stupor. Lumbar puncture was done immediately; 30 c.c. of antimeningococcus serum were administered, and this amount was repeated daily for six days. Improvement was noticed after the first day, and the patient was discharged cured.

Source.—The patient was a rent collector and came in intimate contact with a large number of government employees in this community. Cultures from the nose and throat of five contacts were negative.

Case 12.—*History.*—E. B., white boy, aged 4½ years, was taken sick, January 25, one week following an attack of German measles, with fever, headache, vomiting and delirium. He was seen in consultation on the fifth day of illness, at which time he was semicomatose, with muttering delirium, from which he could be only partially aroused. There was stiffness of the neck with a marked degree of retraction. Kernig's and Babinski's signs were present, and there was a diffused petechial rash. Lumbar puncture was performed at once, and 40 c.c. of cloudy fluid, under pressure, were withdrawn. Fifteen c.c. of antimeningococcus serum were administered. Examination of the fluid was positive for meningococci.

The patient was removed to the City Detention Hospital and, ten hours following the first dose, he was given 15 c.c. of serum. After this, 15 c.c. of serum were administered daily for four consecutive days. Improvement was noticed after the second dose of serum, the fever declined, and the mental condition cleared up; but a few days later the patient developed a hemiplegia. This, however, was only transient, recovery was complete, and he was able to leave the hospital at the end of two weeks.

Source.—The boy's father and a boarder in the house worked at the naval base. Cultures from the noses and throats of five contacts were negative.

Case 13.—*History.*—N. J., white girl, aged 2 years, was taken sick, January 28, with fever and cough. By the next day she had developed stiffness of the neck with marked degree of retraction. She was seen in consultation at 9 p. m. of the second day. Lumbar puncture was done and 40 c.c. of clear fluid, under pressure, were withdrawn. In view of the marked rigidity and in spite of the clear fluid withdrawn, 15 c.c. of antimeningococcus serum were immediately given. A cell count of the fluid was not made, but bacteriologically it was found negative.

On the morning of the 30th another lumbar puncture was done, 30 c.c. of slightly cloudy fluid were withdrawn, and 15 c.c. of serum were administered. Examination of this fluid was positive for meningococci. The patient was given 15 c.c. of serum daily for six consecutive days. Improvement was noticed after the second dose, and recovery was complete.

Source.—The child's father was employed in the Navy yard. Cultures from the noses and throats of five contacts were negative.

Case 23.—*History.*—E. M., colored girl, aged 13 years, awoke on the morning of March 1 complaining of headache and slight fever. During the day she vomited several times. She was seen by her physician at 8:30 p. m., at which time there was stiffness of the neck and retraction. Spinal puncture was done immediately and 25 c.c. of cloudy fluid were removed. Examination of the fluid revealed many gram-negative diplococci. The patient was given 15 c.c. of antimeningococcus serum on two consecutive days. The disease ran a very mild course, the symptoms all cleared up after the first dose of serum, and the patient was discharged cured after one week.

Source.—Her father was employed at the Navy base. Cultures were all negative.

Case 24.—*History.*—R. D., colored man, aged 21, complained, February 28, of general malaise and headache, but he did not stop work. During the night the symptoms became progressively worse, and by the next morning, March 1, he was quite delirious. When seen by his physician, his neck was stiff, and there was a marked degree of retraction. Spinal puncture was done immediately, 50 c.c. of slightly cloudy fluid were removed under marked pressure, and 30 c.c. of serum were given. Smears made from the spinal fluid showed many gram-negative diplococci. The patient was given 30 c.c. of antimeningococcus serum daily for nine consecutive days. *Improvement* was noticed after the first dose, delirium and the mental condition clearing up within a few hours. The case ran a moderate course, and recovery was complete.

Source.—The patient was employed at the naval base, and the day before the onset of the illness he had been in conversation with a convalescent meningitis patient. Cultures from four contacts were negative.

CASE 27.—*History*.—Mrs. M., white, aged 46, awoke on the morning of January 6 complaining of headache, vomiting and myalgia. A physician diagnosed grip. These symptoms became progressively worse, and by the next day there was marked elevation of the temperature, delirium and a diffused petechial rash.

On the morning of January 8, the patient appeared very much better; the temperature was normal, the myalgia was relieved and the mental condition was clear. At 2 p. m. her husband found her semiconscious, delirious and suffering with intense frontal headache and blindness. There was opisthotonos with stiff neck, positive Kernig's sign and increased reflexes. Spinal puncture was done a few hours later. Thirty c.c. of cloudy fluid were removed which was positive for meningococci. The patient was given six intraspinal doses, averaging 30 c.c., of antimeningococcus serum. There was no improvement in the symptoms, death occurring, January 11.

Source.—The patient attended a wedding reception a few days prior to the onset of her illness, at which there was also present naval officers and enlisted men. All cultures taken from contacts were negative.

CASE 33.—*History*.—L. J., white boy, aged 6 years, was perfectly well until May 17, when he was taken suddenly ill with fever, vomiting and indefinite abdominal pains. May 18, he was quite apathetic. There was a marked degree of neck stiffness with retraction, positive Kernig's sign and increased reflexes. Spinal puncture on that date gave 30 c.c. of turbid fluid, under increased pressure. Examination of the fluid was positive for meningococci. The patient was admitted to the City Detention Hospital, where he was given 15 c.c. of antimeningococcus serum daily for five consecutive days. Improvement was noted after the first dose, and recovery was complete.

Source.—The patient was in intimate contact daily with a boarder in the same house who worked at the naval base.

CASE 40.—*History*.—T. I., white boy, aged 8 months, was taken sick, April 6, with slight fever, strabismus and muscular twitching. These symptoms continued, and on April 9 there was stiffness of the neck with retraction and diffused purpuric rash. Spinal puncture on this date gave 20 c.c. of very cloudy fluid, positive for meningococci. Fifteen c.c. of antimeningococcus serum were administered, but there was no improvement in the symptoms and death occurred in a few hours.

Source.—A few days previous to the onset, members of the family had attended a dance at which there were present a number of enlisted men from the Navy. No cultures were made.

We Should Live Up to Our Scientific Possibilities.—In short, Germany's scientific and industrial prestige was due chiefly to a better mobilization of forces; freer publication, better opportunities for research, to ideas and talent imported from other countries and plenty of push and pride in achievement. What we need in America is a better mobilization all along the line. We possess plenty of talent, as a rule not well directed nor given much encouragement. We have plenty of universities and industrial research laboratories of the highest grade, operating as uncoordinated individual units with very little team work to achieve large ends. We have many strong scientific and technical organizations, each holding regular meetings and supporting one or more journals. These organizations, like our universities, are strongly individualistic and exhibit very little team work or cooperation to achieve broad purposes. Science is only just beginning to be popular in our schools and in the public press; we need to advertise and popularize not only scientific and technical work, but especially deep, broad fundamental principles in every line of effort. Finally and most important of all, we need vastly increased effort in living up to our possibilities. In habitual effort the Teutons excelled us by at least 30 per cent. and at least equalized their deficiency in originality. We might easily double our stress of achievement without detriment to ourselves.—Dr. P. G. Nutting, *Science*.

FAVUS HERPETICUS, OR MOUSE FAVUS

POSSIBILITY OF PRODUCTION OF FAVUS IN MAN FROM AUSTRALIAN WHEAT [*]

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Immense stores of wheat have accumulated in certain districts in Australia for several years past because of the lack of shipping to carry it to the foreign markets. This wheat is placed in sacks and stored in great piles. The presence of these quantities of readily available food led to such rapid multiplication of mice, particularly field mice, that the control of these rodents and the saving of the wheat threatened to become a serious problem. The mice, however, were attacked by a virulent skin disease, which reduced their numbers rapidly. The damage already done to sacks and wheat necessitated the rebagging and shifting of a large portion of the grain. Men employed in this work and women engaged in mending gnawed and torn bags were in many cases attacked by a skin infection, apparently of murine origin. Accounts of this disease both in mice and in man have appeared within the last year by the Australian observers Paul[1] and Lawrence.[2] The latter diagnosed the disease in man as favus herpeticus caused by the dermatophyte *Achorion quinckeanum*, the parasite of mouse favus.

In spite of the shortage of shipping, the United States has been importing considerable quantities of Australian wheat. The question arises, Is there danger that men engaged in the handling and milling of the wheat may become infected with this skin disease? In an attempt to answer this query certain studies have been made at the Hygienic Laboratory of samples of wheat and of mouse skins collected in Australia by agents of the U. S. Department of Agriculture. Since there does not appear to be any general discussion of the geographic distribution of the disease, and only a few scattering notes on the disease published in English, a review of the literature of the subject has been undertaken.

DISTRIBUTION OF THE DISEASE: HISTORICAL

The first published note on favus in the mouse is that of Bennett[3] in England in 1850. In a footnote to a lecture on human favus, he records having seen a case of favus "on the face of a common house mouse, in which animal the same cryptogamic vegetations were to be detected as in man." According to Bazin,[4] favus in a trapped mouse was also reported by Draper[5] in New York. The infection had apparently been transmitted from mice to a cat, and from this animal to two children. Gluge and d'Ukedem[6] in Belgium described a skin disease of the mouse which was probably favus.

Three records of mouse favus in Germany were published in 1858. Friedrich[7] in Würzburg described a mouse brought to him by a student. The animal showed the whole region between the ears and snout covered by a yellowish white crust like a cap. The clinical picture was that of favus; this was verified by the microscopic findings. The parasite was believed to differ in some points of morphology from that of human favus. A somewhat similar account is that of Zander,[8] who noted that the disease might easily cause the death of an infected mouse. He also raised the question of identity between the fungus of human favus (*Achorion schoenleinii*) and that of mouse favus, which he termed *Achorion bennetti*. Since no description of the fungus is given, the latter name as applied to the mouse favus fungus has been overlooked, probably rightly, by subsequent writers. Schrader[9] reported an outbreak of favus among the mice in an old dwelling; mice caught practically all showed the characteristic favic lesions and excresences.

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[*] Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of the references to the literature. The complete article appears in the author's reprints.

The first evidence that favus can be transmitted experimentally from mouse to man was given by Pick,[10] in 1865. He succeeded in producing the disease in man by rubbing the skin with particles from the scutulum from a diseased mouse. He concluded that the diseases in man and the mouse are caused by the same parasite. Von Frauenfeld, in the same year, reported an epidermal growth on the head and ear of a house mouse, and identified the disease as favus. Tripier[11] observed cases of mouse favus in Lyons and transmitted the disease experimentally.

Mollière[12] found many cases of the disease mouse favus in Lyons. Simon[13] examined three mice caught in a workhouse in Hamburg. All of the animals showed well marked favic lesions. Later many other mice with favus were secured from the same place. He states that the disease frequently destroys the eyes and may be fatal to mice.

Apparently the first European instances of probable natural transmission of infection from mouse to man are those given by Anderson[14] in 1868 at Glasgow, Scotland. He described several instances of such transmission, among them a case of favus contracted by a young child probably from a trapped mouse, and afterward communicated to other members of the family. He noted that this disease in mice was reported as common in many homes in Glasgow.

Spontaneous transmission of favus from mouse to man were also recorded by Saint Cyr,[15] by Horand,[16] and by Rodet[17] in Lyons, and by Demons[18] at Bordeaux. Paton[19] recorded an extensive outbreak of "ringworm" among soldiers in barracks in England. A cat was found to be seriously affected with favus, and later large numbers of infected mice were observed. He states that the inhabitants of the country about were quite familiar with the disease, finding it "especially fatal to mice, common in cats and children, and occasionally affecting adults." Still later, similar reports were made by Megnin[20] and by Raillet[21] in Paris. In several cases (Rodet, Horand, Demons) transmission to man is alleged.

Flügge[22] stated that favus in mice had frequently been observed in his laboratory (Göttingen), and that Nicolaier had there cultivated the fungus and proved the transmissibility of the disease from mouse to mouse. He concluded that the typical human favus and mouse favus showed certain microscopic differences. This is apparently the first record of the cultivation of the fungus.

Careful studies of the favus fungi in the modern sense were first made by Quincke.[23] This investigator differentiated by cultural and pathologic characters three types of favus fungi from the lesions in man. These he termed the alpha, beta and gamma strains. The beta and gamma types were shown later to be the fungus typical of human favus, *Achorion schoenleinii*. The alpha fungus is of particular interest because it was later shown to be the characteristic fungus of mouse favus. The organism was isolated from the neck lesion of a miller. In general appearance the lesion resembled herpes tonsurans, covering an area about the size of a dollar. Examination showed it to be a true favus with herpetic rings. The only source of infection that could be adduced was in the bags of meal that he frequently carried on his shoulder. Quincke was told that another workman at the mill had a similar lesion on the cheek, but he did not see the case. This author made a careful microscopic and cultural study of the fungus, and proved the possibility of transmitting the disease by means of pure cultures applied to the skin of man, mice and dogs. From the lesions so produced he again secured the organism in pure cultures. Later Quincke[24] isolated the same alpha fungus from a young girl at Kiel. In searching for the origin of the disease, he found that mice in the barn in which the girl was accustomed to play were infected with favus. Still later he isolated the mouse favus fungus from the lesions of two cats. He summarizes the differences, clinical and microscopic, between true human favus and mouse favus, and suggests that the diseases in man be termed, respectively, "favus vulgaris" and "favus herpeticus." Boer[25] in Berlin isolated the alpha fungus from mice, and transmitted the disease from mouse to mouse.

The name *Achorion quinckeanum* by which the fungus of mouse favus is now generally known was given to Quincke's alpha fungus by Zopf.[26]

During the next decade there was much discussion concerning the number of species of fungi capable of producing favus in man. Some authors maintained that only one species could be recognized; others described as many as nine. Into the details of this controversy it is not necessary to enter, only certain work being pertinent.

De Fortunet and Courmont[27] isolated a fungus from a vesiculous eruption of a hand. This was studied by Busquet,[28] who regarded it as the fungus of mouse favus and termed it *Achorion arloingi*. Later[29] he concluded that all favus is caused by the same fungus, but he believed that the primary agencies in the distribution of the disease were the rats and mice. He records in support of this contention a case of favus on the hand of a young woman who had removed some diseased mice from a trap. Other mice caught later in the same place were found by him to be infected with favus.

Frank,[30] in Hamburg, made a study of cultures secured from cases of human favus and two from mice. He found that there were distinct differences between the fungus usually found in human favus and that in the mouse. Král[31] noted that Frank's mouse favus was transmissible to man.

Sherwell,[32] in Brooklyn, concluded that a number of cases of human favus were contracted from the lower animals. He mentioned a family in which two contracted favus from a dog, which in turn was probably infected from rats and mice. Many of the latter infected with favus were seen. Apparently this is the second American ascription of human favus to rodents.

Neumann[33] stated that mouse favus is common in Lyons, frequently proving fatal to the animals infected.

Hutchins,[34] in Atlanta, Ga., recorded a case of favus of the scalp of a young negro child, the disease apparently being contracted from white rats.

A favus fungus differing somewhat in its characteristics from those previously reported was described by Waelsch,[35] who isolated it from two favus mice from Hamburg. According to Sabouraud,[36] it is probable that the fungus isolated by Ingianni[37] from a case of human favus in Italy was *Achorion quinckeanum*.

Plaut[38] concluded that there exists only one species of the favus fungus, but that by long growth on different species of animals distinct strains have been produced which show a considerable degree of constancy, but which may be transformed one into the other.

One of the best modern descriptions of the fungus of mouse favus is that of Bodin.[39] He isolated *Achorion quinckeanum* once from a mouse from Autun and four times from mice from Rennes. He concluded that natural infection of man from mice is comparatively rare, but that it does occur.

Adamson[40] has given excellent accounts of several cases of human infection with mouse favus in England. Plaut,[41] (1909) in summarizing the knowledge concerning mouse favus, accepts the differentiation of the mouse favus from the human type. He concludes that favus of the smooth skin in man is usually of murine origin. An illustration is given of the arm and breast of a woman infected accidentally from a mouse. In contrast to Bodin, who reported about eight cases of body favus to a hundred in man, Plaut states that in his clinic in Berlin there are more cases of body favus (mouse infection directly or indirectly) than of the head favus.

Chajes,[42] in Berlin, reported an isolation of the fungus of mouse favus from a hand. He concluded that this type of infection is much more common in man than is commonly thought, for the disease is apt to be atypical and to be classed as a herpes tonsurans. Tomaszewski[43] gave an excellent description of the differential characteristics of human and mouse favus.

Probably the most extensive of the treatises on favus published is that of Sabouraud.[36] From his large experience in France he concluded that while there are distinct types of favus fungi to be found in animals, proved instances of their transmission to man are very rare. In his own clinic he has never seen an isolation of the mouse favus fungus in more than 200 cases of human favus. Bloch[44] protested the conclusions of Sabouraud, stating that in his own experience in Basel the mouse favus fungus producing the body lesions in man was much more common than the typical head fungus of man. He rarely observed *Achorion schoenleinii* except in the Russian and Italian immigrants. He recognized clearly that there are three distinct fungi capable of producing favus in man, *Achorion schoenleinii, A. quinckeanum* and *A. gypseum*. Later[45] he described a fourth, *A. violaceum*, cultivated from four cases of human dermatomycosis. He was able to differentiate the organism by its clinical effects and by its biologic and cultural characters. Two of the cases occurred in a house in which mice having favic lesions were caught, the same fungus being cultivated from both mice and man.

Plaut[46] states that favus is common among the mice in Hamburg, and that each year he sees cases of the disease in man. DuBois,[47] in Geneva, records two isolations of mouse favus from man.

Of particular interest is the appearance within the last year of the two papers first mentioned, relating to mouse favus and its spread to man in Australia. There seems to be some question as to whether the organism isolated by Paul,[1] and named by him *Trichophyton rodens*, is the same as the fungus that causes mouse favus. The descriptions and illustrations of Lawrence,[2] on the other hand, leave little doubt that he is dealing with *Achorion quinckeanum*. According to Paul, the characteristic skin lesions occur mostly on the exposed parts of the hairy regions of the face, producing a multiple kerion. In the particular case described, two months had elapsed between the opportunity for infection and the development of the lesions. Lawrence believes that Paul was not dealing with a typical case. Fungi isolated by the latter author both from field mice and from man showed the cultural characteristics of the mouse favus fungus, and identical lesions were produced in mice and guinea-pigs inoculated with cultures from each source. The lesions in man show well developed scutula in some cases, and correspond accurately to the descriptions of the favus herpeticus of Quincke.

From this summary, it is evident that a distinct disease, mouse favus, exists commonly in Belgium, England, France, Germany, Italy, Scotland, Switzerland, probably other parts of Europe, Australia and probably more rarely in the United States. There is abundant evidence of the transmissibility of the disease from mouse to man, producing the favus herpeticus of the glabrous skin. It is apparent that the disease is of sufficient importance to warrant the careful study of the possibility of its importation into the United States with Australian wheat. Even though it should be imported, however, there would probably not be good reason for excluding the wheat, for the disease in man is usually not serious, and yields readily to treatment. It is much more amenable to treatment than the human favus of the scalp. In mice, however, the disease frequently, perhaps generally, proves fatal.

EXPERIMENTAL

Samples of Australian wheat from two sources were examined. One sample contained parts of the dried skins of two mice. The latter were so dried, dusty and adherent to the cotton in which they were wrapped that a satisfactory examination proved difficult. No typical favic scutula or crusts were present. Scrapings from the denuded areas showed fungus hyphae, but the material was too meager and in too poor condition to permit a reliable diagnosis. It is possible that the mice examined had been infected, but there was no microscopic proof. Many attempts were made to infect mice and guinea-pigs from these skins and from the wheat. All were without result. No fungus resembling that of favus was secured as the result of numerous culture attempts. If present originally, in the wheat samples or the mouse skins, the fungus probably had died as a result of the prolonged desiccation.

In view of these negative experimental results, the question may arise as to the possibility of spores or hyphae of the mouse favus surviving transportation. Data on the longevity of the fungi of this group are not abundant. Sabouraud states that the fungus of favus, at least as it exists in the scutula, remains viable for a considerable period. Sabrazès found that the spores in the scutulum were still alive after two years. Apparently they are more resistant than are those of other dermatophytes. It is not improbable, therefore, that under certain conditions there may be an occasional appearance of mouse favus or, better, of favus herpeticus, among those handling Australian wheat in the United States. The possibility of the spores being present in flour and causing infection in bakers is very remote. Careful studies of the thermal death point of the spores of this fungus apparently have not been made, but related to trichophytes have been shown to be readily destroyed by heat. It is not at all improbable, however, that some of the mill by-products used as animal feed may contain viable spores and infect mice, or possibly other animals or man occasionally.

CONCLUSIONS

1. There exists in many parts of Europe and in Australia, and probably in the United States and in other parts of the world a disease, mouse favus, the cause of a highly fatal infection among mice and not infrequently transmitted to man, producing a herpetiform favus of the smooth skin. The disease in man usually yields readily to treatment.
2. Samples of mouse skins and of wheat from Australia failed to show evidence of favus. That the disease is prevalent among the field mice that have attacked the Australian wheat stores seems to be established through the accounts of Paul and of Lawrence.
3. It is not improbable that cases of favus herpeticus may arise occasionally among men who handle the imported Australian wheat or in animals, particularly rodents, that feed on the grain or on certain of the mill by-products.
4. It is not probable that the danger from the disease is great enough, or the disease itself serious enough, to warrant interference with the importation of the wheat from Australia.

A CASE OF MULTIPLE CHANCRES OF THE PENIS

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MILWAUKEE

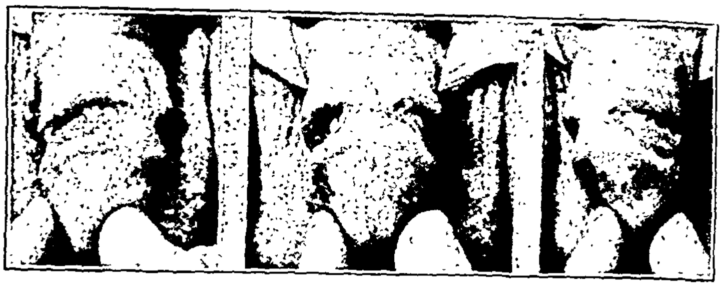
Referring to the primary lesion of syphilis, Osler[1] states that "in about one fourth of the cases it is multiple." Contrary to this opinion, a perusal of the literature of the past ten years reveals but one complete case report of multiple chancre. Zeisler[2] describes in detail the case of a young colored woman who presented two separate lesions situated on the lower lip, both of equal duration. Each presented the typical appearance of a chancre, and each was proved so to be by dark-field examination of the expressed secretion. The same author mentions recalling having seen a case of double chancre of the cheek.

Because of the paucity of reported cases of multiple chancre, I have deemed a case recently coming under my observation as being worthy of complete description. The case is of special interest not only because it presents two separate chancres but also because there was a difference of four weeks in the development of the two lesions.

REPORT OF CASE

History.—H. J., white man, single, aged 28, a drill dresser, (Marquette Dispensary No. 6855), admitted Oct. 28, 1918, had had a single small sore on the penis in 1913, which healed in several days with the application of some yellow powder. Neither rash, sore throat, falling hair, nor bubo followed. The patient admitted intercourse, August 10, and, with a different party, September 3, but at no time subsequently.

September 7, he noticed a small sore in the coronal sulcus on the right side of the penis. This sore continued to increase in size, but was not of sufficient size to warrant much concern until it had been present two weeks. October 5, four weeks after the appearance of the first sore, the patient noticed a separate sore developing in the coronal sulcus on the left side of the penis. In spite of repeated applications of mercuric oxid both sores had continued to increase in size. About October 20, the patient began noticing a soreness of the throat which had persisted. About October 25, the patient noticed a rash.



Multiple chancre of penis.

Physical Examination.—The entire pharyngeal wall was everywhere inflamed but not ulcerated. There was a faint but distinct macular rash, more prominent on the neck and chest but also seen on the face, back and extremities. There was a general lymphadenitis, not particularly marked, in each groin. In the coronal sulcus on each side of the penis was a large, typical hunterian chancre, ulcerated on the surface and situated on a hard, indurated base. The two chancres were completely separated by a centimeter of perfectly healthy tissue.

Laboratory Findings.—By carefully collecting a drop of serum expressed from the margin of either sore, Dr. Daniel Hopkinson succeeded in demonstrating the presence of *Spirochaeta pallida* in both lesions. The Wassermann test of the blood was found to be + + +. After the first injection of 0.4 gm. of arsphenamin there was a characteristic healing change noted in each sore.

COMMENT

That both lesions represent the same infection, one developing after four weeks' incubation and the other after eight weeks' incubation, seems altogether improbable. There remain but two other possibilities: The first, that the right chancre represents the original infection contracted four weeks before its appearance, and that after a second incubation period of four weeks, a transplanted chancre developed on the left; the second, which seems the more probable, that the right chancre was contracted August 10 and the left chancre September 3, each developing after four weeks' incubation.

Wells Building.

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[1] Osler: Modern Medicine 3: 454, 1907.

[2] Zeisler, E. P.: Multiple Chancres of the Lip J. A. M. A. 68: 1546 (May 26) 1917.

Hygiene.—Only unpractical people ignore hygiene. Hospitals, insane asylums, jails and poorhouses are monuments to our ignorance and conceit. We must know, we must understand, and we must practically apply our knowledge of hygiene; otherwise we perish.—*Monthly Bulletin*, Indiana State Board of Health.

TUBERCULOSIS OF THE STOMACH

WITH REPORT OF A CASE OF MULTIPLE MILIARY TUBERCLES

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Tuberculosis of the stomach is a rare condition. In a series of 2,501 gastric operations at the Mayo Clinic, tuberculosis was found only once.

From a recent paper of Broders[1] on this subject, with a complete bibliography up to 1917, it is evident that tuberculosis of the stomach had been described before the discovery of the tubercle bacillus of Koch in 1882.

According to Broders, gastric tuberculosis may be divided into six types: (1) ulcer, single or multiple; (2) miliary tubercle; (3) solitary tubercle; (4) pyloric stenosis; (5) tumor or nodule, single or multiple, and (6) lymphangitis.

The case reported here apparently belongs to Type 2.

REPORT OF CASE

History.—S. S., woman, aged 20, clerk, single, admitted to my service at the Beth David Hospital, Feb. 21, 1918, and discharged, March 26, 1918, complained chiefly on admission of pain in the epigastrium, pain in the precordial region, attacks of vomiting, headaches, loss of flesh, weakness and constipation. The father and two sisters had indigestion. There was no history of tuberculosis, carcinoma, diabetes or alcoholism. The patient had had scarlet fever, measles and diphtheria, and was anemic in early childhood. She began to menstruate at the age of 14. The menstrual periods occurred every five weeks. There was a moderate flow for four or five days. Pain in the lower abdomen was felt on the first and second day of the menstrual flow. The patient ate and slept regularly, chewed the food well, and drank one cup of tea and one cup of coffee daily. She drank no liquors. Her appetite was poor. She denied venereal *diseases.*

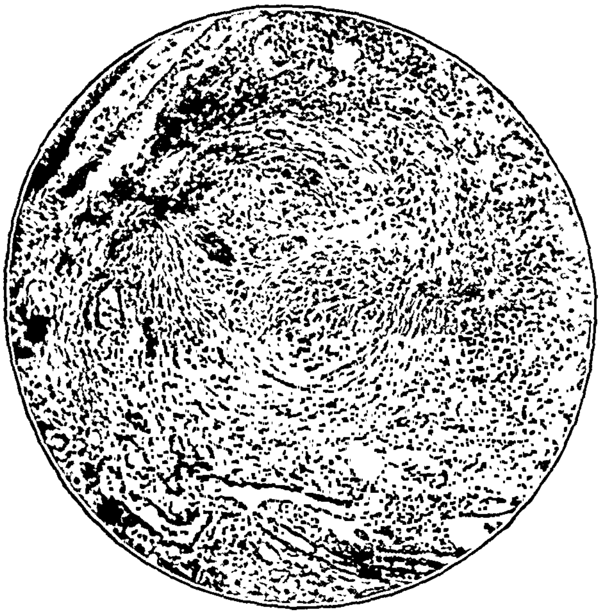

Fig. 1.—Section from tubercle, × 100.

Four months before, while visiting friends, the patient ate some roast meat and swallowed a large piece. On returning home she felt nauseated and after taking a purgative was somewhat relieved. One week later she began to feel a dull pain in the pit of the stomach which was relieved in from one half to one hour after taking food, only to begin again three hours later. The pain radiated to the left of the epigastric region.

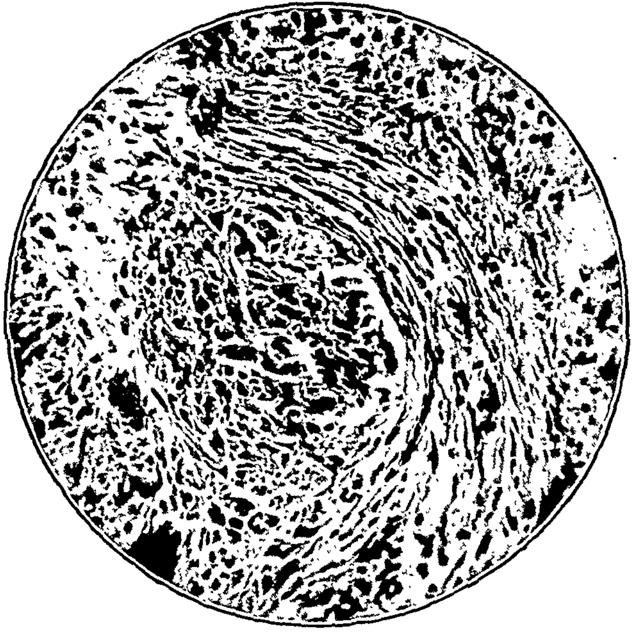

Fig. 2.—Section from tubercle; × 215.

The patient also experienced pain on bending forward, on breathing or laughing. For the last two weeks she had been awakened by pain about 2 a. m., and was relieved by turning on the right side. She vomited on several occasions during her illness. Occasionally she had headaches in the supraorbital region, without any relation to the partaking of food. The bowels moved only after the patient had taken liquid petrolatum. She had never noticed any blood in the stools, nor did the evacuations at any time have a tarry appearance.

Physical Examination.—The heart and lungs were normal. The patient had a high arched palate. There was slight prominence of the thyroid gland. A fairly marked rigidity was noticed in the upper abdomen, especially to the left side and exaggerated knee jerks.

Preoperative laboratory examinations revealed: Blood: hemoglobin, 85 per cent.; erythrocytes, 4,800,000; leukocytes, 12,000; polymorphonuclears, 59 per cent.; lymphocytes, 31 per cent. Urine: Albumin and sugar were negative, and indican not in excess. There were no casts. A few calcium oxylate crystals were noted. Gastric Analysis: After a test breakfast, 210 c.c. of contents were obtained. Free hydrochloric acid was 18, and total acidity 56. There was no blood. Roentgenoscopy revealed ulcer at the lesser curvature of the stomach with adhesions.

Operation and Result.—A median 5 inch upper abdominal incision was made by Dr. A. O. Wilensky, March 5, 1918. An area of the lesser curvature of the stomach about 2 inches long, extending to the anterior and posterior surface of the stomach for an equal distance was thickened and inflamed. There were numerous fresh fibrinous adhesions and large numbers of miliary tubercles thickly scattered over the inflamed area. The condition extended upward into the gastrohepatic omentum for about 1 inch. The gross diagnosis was tuberculosis. The remainder of the abdomen was explored, but no other focus of tuberculosis was found. The abdominal wall was sutured in layers and dry dressing applied.

MEDICAL COLL
LIBRARY

The pathologic report of section from one of the tubercles removed at the operation was: caseation of tubercle, giant cells and nuclei (Figs. 1 and 2).

Roentgenoscopy of the chest, March 16, 1918, revealed the usual amount of peribronchial thickening. There were no

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[1] Broders, A. C.: Tuberculosis of the Stomach, with Report of a Case of Multiple Tuberculous Ulcers, Surg., Gynec. & Obst. 25: 490, 1917.

Dr. Robert

suspicious areas. The von Pirquet test, March 21, 1918, was reported positive by Dr. Jersky.

The complement fixation test made independently by Drs. H. R. Miller and Jersky were reported as weakly positive.

The patient made a good recovery and was discharged, March 26, 1918, apparently well.

63 East Eighty-Fourth Street.

SERUM TREATMENT OF POSTINFLUENZAL BRONCHOPNEUMONIA *

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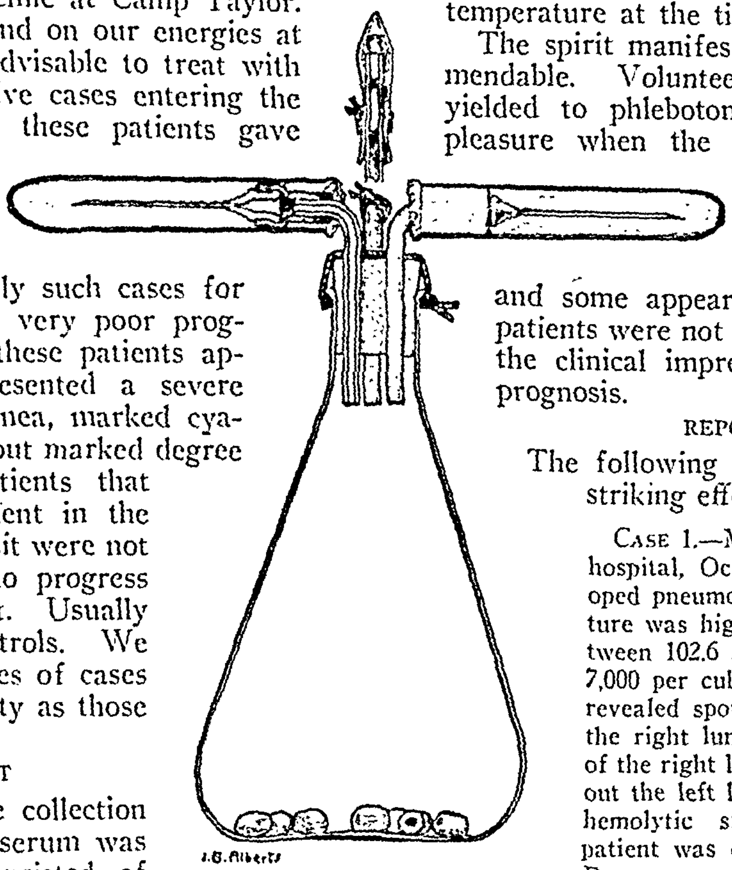
The use of serum from patients convalescing from postinfluenzal bronchopneumonia in the treatment of this disease was suggested by the author early during the appearance of the epidemic at Camp Taylor. As there was a great demand on our energies at the time, it did not seem advisable to treat with serum a series of consecutive cases entering the hospital, because many of these patients gave promise of recovering without it, and the treatment would have been superfluous.

We therefore selected only such cases for serum treatment as gave a very poor prognosis clinically. Some of these patients appeared moribund. All presented a severe toxemia with extreme dyspnea, marked cyanosis, fever, and a variable but marked degree of lung involvement. Patients that showed signs of improvement in the day or two preceding our visit were not treated, as they promised to progress favorably without treatment. Usually these were selected as controls. We thus used as controls a series of cases of the same type and severity as those we treated.



Apparatus for collection of serum.

SERUM TREATMENT

The method used for the collection and the preparation of the serum was simple. The apparatus consisted of 500 c.c. Erlenmeyer flasks fitted with rubber stoppers through which three L-shaped tubes led outward. To two of these a large-caliber needle was attached by means of a short piece of rubber tubing, and protected by a glass covering as shown in the illustration. The third piece of glass tubing was plugged with cotton and used as an exhaust for suction when the blood was being drawn.

The blood was taken under sterile precautions from the elbow veins, with a tourniquet around the arm. We collected from 300 to 400 c.c. from each donor. Two donors felt faint during the phlebotomy, but no other consequences were noted.

The blood was allowed to stand for from twelve to eighteen hours in the refrigerator. The serum was then decanted under sterile precautions and tested for complement fixation against syphilis. Serum showing a positive Wassermann reaction was discarded. It was deemed unnecessary to test hemolytic or hemagglutinative reactions between the bloods of donor and recipient, as the amounts were not sufficient to make these reactions in the circulation of consequence. The serums of two or three donors were mixed and about 100 c.c. were given intravenously at each injection. Most of the patients received two injections within twenty-four hours. A few received three injections and some, the apparently moribund patients, necessarily had only one injection. In some of the cases a preliminary phlebotomy of a small amount of blood was done. The details will be mentioned in the case reports.

Convalescent influenza patients and influenzal bronchopneumonia patients were used as donors. In the treatment of the last twenty cases of our series only bronchopneumonia convalescents were used. We chose preferably full-blooded large-built individuals in whom the disease had been severe. In most of these, less than one week had elapsed of normal temperature at the time of phlebotomy.

The spirit manifested by the donors was commendable. Volunteers responded heartily and yielded to phlebotomy with an avowed heroic pleasure when the purpose of the work was stated to them.

The patients were all in a very critical condition at the time of the injection, and some appeared moribund. The control patients were not treated because they all gave the clinical impression of a more favorable prognosis.

REPORT OF CASES

The following cases especially indicate the striking effects of the serum treatment:

Case 1.—Major A. D. C., admitted to the hospital, October 14, with influenza, developed pneumonia, October 21. The temperature was higher, October 22. It ranged between 102.6 and 99.4. The leukocytes were 7,000 per cubic millimeter. Roentgenoscopy revealed spot shadows in the upper lobe of the right lung, a shadow in the lower lobe of the right lung, and spot shadows throughout the left lung. The sputum showed nonhemolytic streptococci. October 25, the patient was extremely toxic and jaundiced. Dyspnea was marked, cyanosis was present, and the patient was dull mentally. At 4:30 p. m., 100 c.c. of serum were given after a preliminary phlebotomy of about 60 c.c. of blood. Within six hours there was much improvement. The following morning the dyspnea was much less, the cyanosis diminished and the patient more alert. The improvement was remarkable. October 26, at 5:30 p. m., another intravenous injection was made of 100 c.c. of serum after preliminary phlebotomy of 50 c.c. of blood. The temperature promptly reached normal, and recovery continued uneventful.

Case 2.—R. L. B. was admitted to the hospital, October 14. October 20, his left chest showed dulness and bronchial breathing below the level of the fourth rib; the right chest was slightly less involved. October 24, the patient appeared moribund. The white blood count was 7,900 per cubic millimeter. The temperature ranged about 102 F. There was extreme dyspnea, marked delirium, cyanosis and rapid, bounding pulse. The condition seemed hopeless, with beginning pulmonary edema and overwhelming toxemia. At 11 p. m., 90 c.c. of immune serum were given. The following morning the temperature was 99.4 F., and in the afternoon it fell to 98 F. The toxemia still persisted, though the improvement following the serum injection was surprising. October 26, at 11 a. m., with the patient still toxic, an additional 70 c.c. of serum were given. Recovery thereafter was progressive.

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* From the Medical Service, Base Hospital, Camp Zachary Taylor, Ky.

Case 3.—H. L., admitted to the hospital, October 9, developed pneumonia soon after. The temperature varied between 102.4 and 104.6 F. Roentgenoscopy revealed spot shadows throughout the right lung. The sputum showed pneumococcus Type IV. October 25, the temperature was 102; there was evidence of marked toxemia; marked dyspnea and cyanosis, delirium and jaundice. At 11:30 a. m. an intravenous injection of 80 c.c. of serum was given. The patient's condition continued unchanged for three days, during which the toxemia increased, the jaundice was marked, and the fever continued. October 28, at 2 p. m., a second injection of 100 c.c. was given, and this was repeated at 10 a. m. the following day. The patient improved promptly, and recovery was uneventful.

Case 4.—C. C., admitted to the hospital with influenza, September 27, developed bronchopneumonia. Roentgenoscopy revealed shadows in the lower right lung and the middle portion of the left lung. The temperature varied between 102 and 103. October 22, the condition was very critical; the patient was semiconscious. His temperature was 102, with marked dyspnea and cyanosis. At 3:30 p. m., 100 c.c. of serum were injected intravenously. The following morning the temperature fell to 100.8 F. At 10 a. m., 100 c.c. of serum were again given. The patient still remained toxic and irrational. At 10 a. m., October 25, 100 c.c. of serum were again given. The patient's recovery seemed irrefutably prompted by the use of the convalescent serum.

Case 5.—W. M. S., aged 27, admitted to the hospital, September 30, developed bronchopneumonia later, and on October 22 appeared to be moribund. He was semiconscious, toxic, dyspneic and cyanosed, and meningeal involvement was suspected. At 9 p. m. on that day, 100 c.c. of serum were given intravenously. The patient seemed much improved the following morning, and his recovery was progressive after the one injection.

SUMMARY

1. Twenty-five patients with clinically grave prognosis, toxemia, extreme dyspnea and cyanosis and extensive lung involvement were treated with serum from convalescent influenzal bronchopneumonia patients.

2. The mortality, as determined from the final disposition of the patients in this series, was twelve, or 48 per cent.

3. Eighteen other patients with prognosis equally grave clinically were used as controls and treated like the others, but without the use of serum.

4. The mortality in this series was twelve, or 66.6 per cent.

5. The selection of the most severely ill patients was deemed more correct for judging the value of the immune serum than the selection of a series of consecutive patients, the larger number of whom would recover without the use of the serum.

6. From the relative percentage mortality in the two series as well as from the surprising beneficial effects of the serum in individual cases, we believe that serum from convalescent influenzal bronchopneumonia patients deserves further trial in the treatment of the disease.

7. It may perhaps act as a favorable antitoxic factor in the circulation to assist in the general reaction to the pathologic process.

8. It must be emphasized that the number of cases in this series does not warrant very positive conclusions.

The Alkaline Reserve in Shock.—In shocked men there is a reduction of the so-called "alkaline reserve" of the blood, that is, the amount of sodium bicarbonate present. This is due to the development of nonvolatile acids which unite with the sodium and drive off the carbon dioxid.—*Review of War Surgery and Medicine.*

PHYSICAL EXERCISES IN USE IN THE CARDIOVASCULAR SERVICE

GENERAL HOSPITAL NO. 9, LAKEWOOD, N. J.

BERTNARD SMITH, M.D. (Los Angeles)
Captain, M. C., U. S. Army
LAKEWOOD, N. J.

The exercises here reported were planned for the training of soldiers with "irritable heart," and they have been used for a sufficient length of time to prove their value in physical development and in estimating the fitness of the men for military service. Tests of muscular strength have shown that a large proportion of the men, sent to this hospital on account of the symptoms that characterize the "irritable heart of soldiers," are of poor muscular development. They give, also, a history of having lived, in civil life, at a physical level considerably below that at which their symptoms appear. In many instances the situation is complicated by the fact that for years their families and physicians have continually impressed on them the idea that they must "take it easy," and never "overexert," on the grounds that they were "not strong" or that they had a "weak heart." The main problem, in such cases, is to improve the general physical condition of the patients, and but little progress can be made in this direction until they begin to get some self-confidence, and realize that even if they do get tired, short of breath or have some pain in the chest, nothing serious is going to occur. This type of individual must be gradually taught that it is safe for him to venture beyond what he has previously considered the limit of his physical activity. With this in view, the exercises of the first and second grades are given in slow rhythm, and care is taken to avoid short, snappy commands. The only part here carried out with anything like

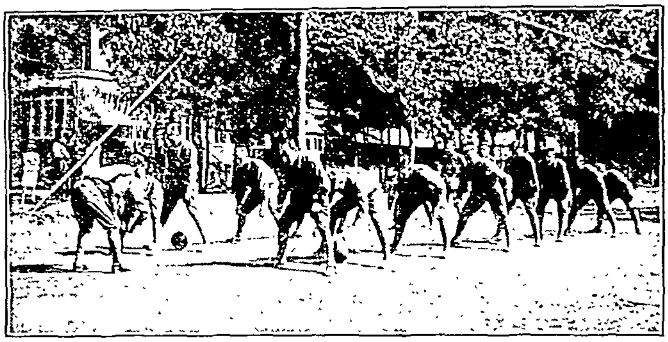

Fig. 1.—Stride ball relay, for advanced grades.

Fig. 2.—Push ball, for advanced grades.

military precision is stepping from the line to the position for the exercises. This is done promptly on the command.

One medical officer is present at each exercise period. He watches the men closely, noting any objective signs that may indicate overexertion, and recording any symptoms that may be voluntarily mentioned by the patient. No observations are made on the pulse rate or blood pressure, and everything possible is done to direct attention away from the heart and to focus it on the problem of general physical development. The medical officer is the only person having the right to grant excuses from the exercises, and he decides when the men are ready to advance in the grades. The usual length of stay in each grade is one week, but in some instances this must be prolonged. It is not uncommon for a patient to complain of subjective symptoms for the first day or two when beginning a new group of exercises, and to have the symptoms disappear when he is reassured as to their triviality and made to continue until he becomes accustomed to the work of the grade. The medical officer in charge of the physical training has a very important part in making the work a success. It is essential that the patients should have absolute confidence in his professional ability. He must be a good judge of men, and must be able to distinguish clearly between those who, lacking self-confidence, need to be encouraged, and those who are lazy or malingerers and need to be driven or disciplined. By informal talks with the men, either one at a time or in small groups, he can exert an influence that is of value in both discipline and development.

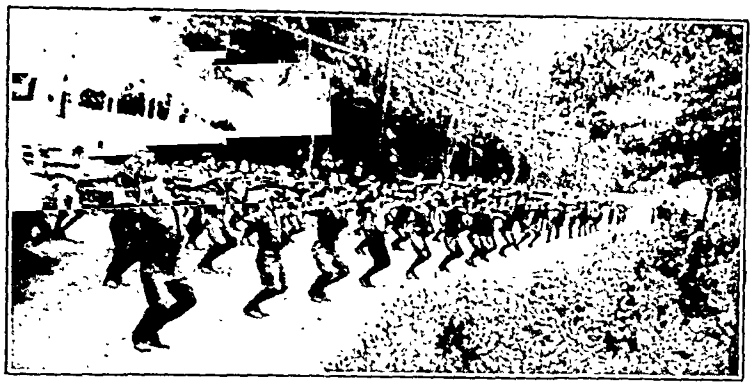

Fig. 3.—Combined cardiac class.

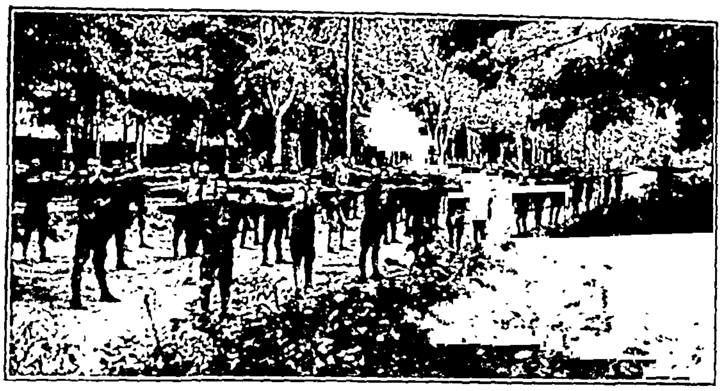

Fig. 4.—Cardiovascular patients in graded exercises.

It has been found in this hospital that the interest of the men in the exercises is greatly stimulated by checking up the degree of improvement with muscular strength tests. The method of Martin[1] is used. These tests enable the men to see for themselves the progressive improvement in their physical condition. It is also regarded as important that the exercises should be given by physical trainers who have had considerable experience and also understand thoroughly all the details as to the way in which the various exercises should be carried out.

INTERPRETATION OF THE COMMANDS

A few explanations of some of the commands used may be useful:

Arms forward: The arms straight, shoulder high and shoulder width apart, palms turned inward and shoulders back.

Arms forupward: Arms raised upward by passing through the arms forward position.

Arms sideward: Arms shoulder high, hands slightly behind a line drawn through the shoulders, palms downward.

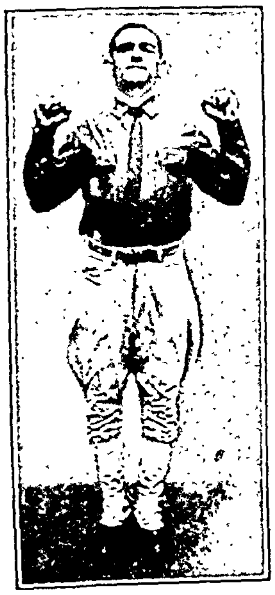

Fig. 5.—Grade I, Exercise 3.

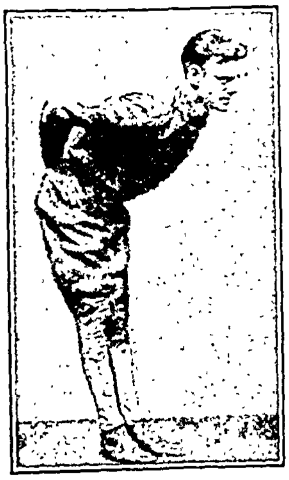

Fig. 6.—Grade I, Exercise 4.

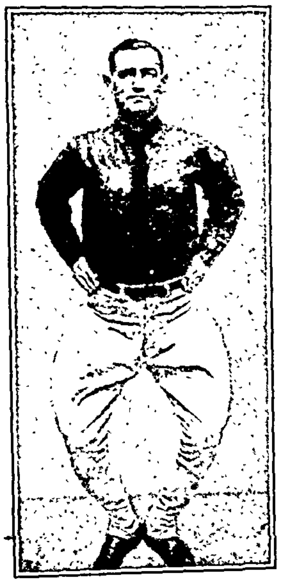

Fig. 7.—Grade II, Exercise 3.

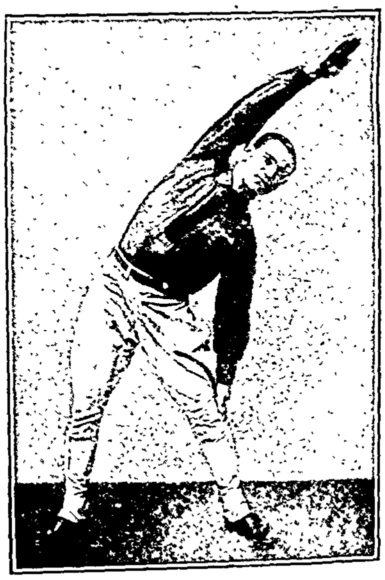

Fig. 8.—Grade II, Exercise 6.

Arms sideupward: Arms raised through arms sideward position, palms turned inward as the arms are raised upward above the shoulders.

Arms backward: Arms are raised over the head and backward as far as possible, with chest raised.

Hands on hips: Hands firmly on hips, thumbs to the rear, elbows and shoulders well back.

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[1] Martin, E. G.: Am. J. Physiol. **46**: 67, 1918.

Arms bent for thrust: Arms bent, elbows close to sides, forearm verterical, hands clenched at side of shoulder, knuckles outward.

Arms bent for strike: Hands clenched over shoulders, knuckles to the rear, elbows shoulder high and well back.

Support lying frontways: Weight supported on hands and toes—the arms, trunk and legs straight.

Trunk bent forward: Back bent as much as possible, head up, knee straight. Head leads in return movement.

Trunk lowered one half forward: Back flat, head up, trunk carried midway between vertical and horizontal positions.

Trunk lowered forward: Back flat, trunk to horizontal, head up.

Trunk bent backward: Chest raised, head and neck lowered backward as a unit, chin in, knees straight. The bending is in the upper spine.

Trunk bent sideward: Body bent directly sideward, knees straight, feet flat on the floor.

Chest raised: The chin drawn in and the chest raised upward and forward.

Heels raised: Heels raised, ankles fully extended, weight on toes, heels slightly separated.

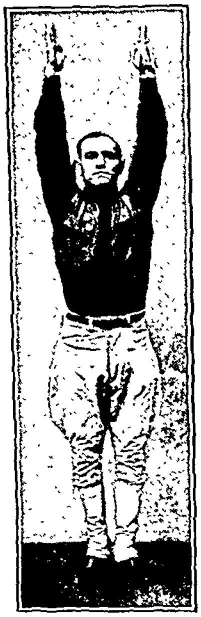

Fig. 9.—Grade III, Exercise 1.

Knees bent: Heels raised and slightly separated, knees bent outward, body erect, head up.

Leg raised: Body held erect, chest raised, leg raised as high as possible, knee and ankle extended.

Foot placed: Foot placed in given direction, toes touching floor, leg straight, weight on stationary foot. Feet about 18 inches apart.

Stride: Weight equally divided on both feet, feet flat on floor. Feet about 24 inches apart.

Side Step: In given direction. Weight transferred to stepping leg, heel of stationary foot raised. Distance about 24 inches.

Lunge: Leg raised and a step taken in given direction, knee of stepping leg bent, feet flat on floor, body erect. Distance about 24 inches.

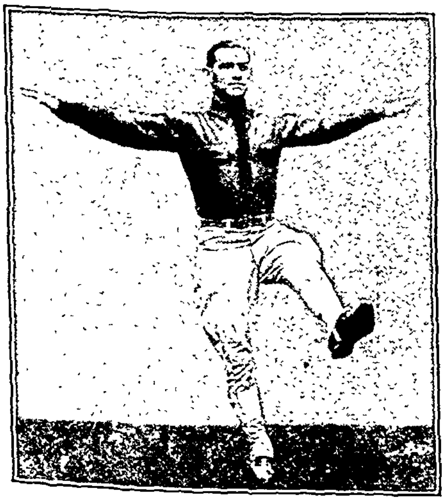

Fig. 12.—Grade IV, Exercise 3.

Feet closed: Inner edges of feet together, knees together.

Head lowered backward: Chin drawn in, head and neck lowered backward as a unit.

RHYTHM OF MOVEMENTS

Arm and leg movements are usually taken in fast rhythm.

Trunk and head movements are always taken in slow rhythm.

The balancing exercises are done on count or command. These exercises are the third in each of the various groups.

In compound exercises, the rhythm is that of the slowest movement.

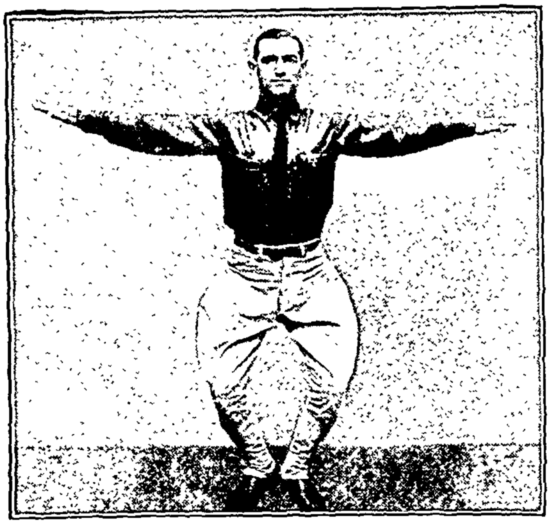

Fig. 10.—Grade III, Exercise 3.

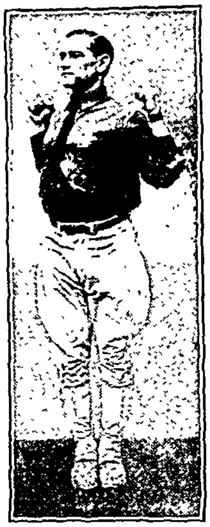

Fig. 11.—Grade III, Exercise 6.

EXERCISES

Grade I (fifteen minutes):

1. Raise arms sideupward—1. Return—2.
2. Arms bent for thrust: Straighten arms sideward and raise chest—1. Return—2.
3. Bend arms for thrust: Raise heels and chest—1. Return—2.
4. Hands on hips: Lower trunk one half forward and exhale—1. Return—2.
5. Bend arms for thrust—1. Straighten arms upward—2. Return—3,4.
6. Hands on hips: Bend trunk left—1. Return — 2. Right—3, 4.

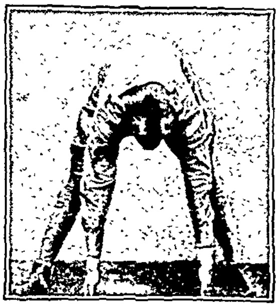

Fig. 13.—Grade IV, Exercise 4.

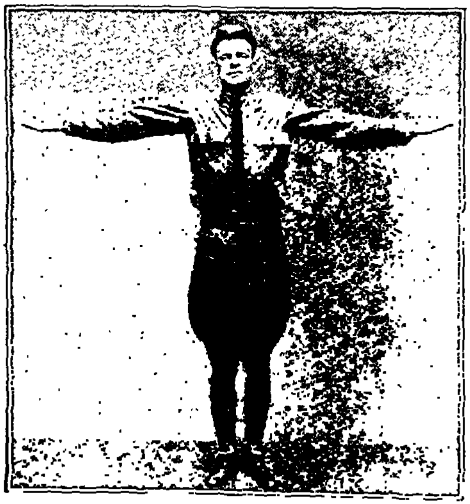

Fig. 14.—Grade IV, Exercise 8.

7. March in place (one minute).
8. Raise arms sideward and inhale. Lower and inhale.

Grade II (fifteen minutes):

1. Arms bent for thrust: Thrust arms forward—1. Return—2.
2. Raise heels and chest. Inhale—1. Return—2.
3. Bend knees one half deep—1. Return—2. (Hands on hips.)

4. Hands on hips: Raise chest and inhale—1. Lower trunk one half forward and exhale—2. Return—3, 4.

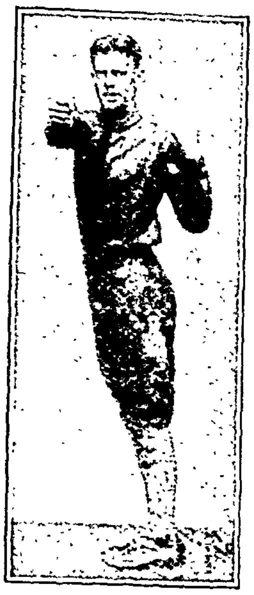
Fig. 15.—Grade V, Exercise 1.

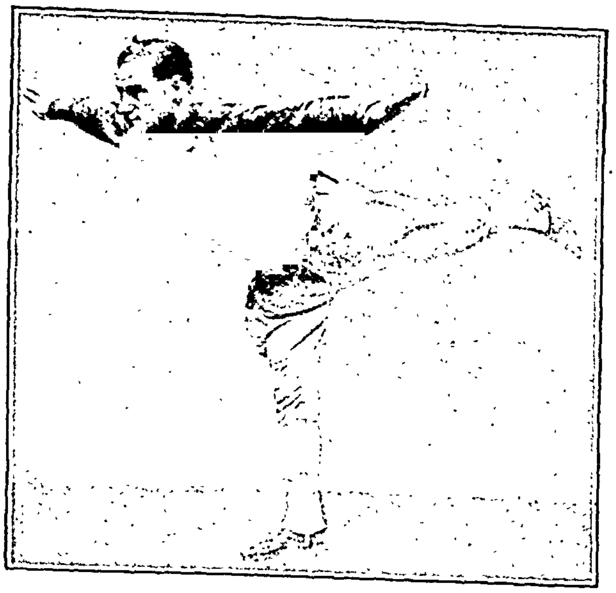
Fig. 16.—Grade V, Exercise 3.

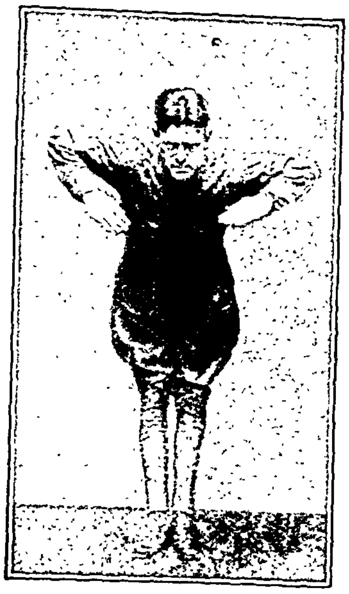
Fig. 17.—Grade V, Exercise 4.

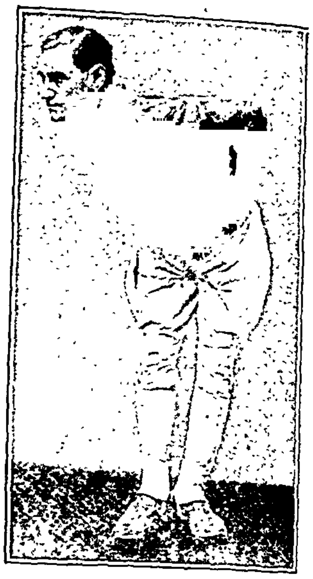
Fig. 19.—Grade V, Exercise 6.

5. Arms bent for thrust: Swing left leg forward—1. Return—2. Right—3, 4. Trunk held erect.
6. Side stride stand: Bend trunk left sideward and raise right arm sideupward—1. Return—2. Left arm—3, 4.
7. March in place (two minutes).
8. Raise arms forupward and inhale. Lower sidedownward and exhale.

Grade III (twenty minutes):
1. Raise arms forupward—1. Return—2. Raise arms sideupward—3. Return—4.
2. Raise arms forward—1. Move arms sideward, raise chest and inhale—2. Return—3, 4.
3. Bend knees and raise arms sideward—1. Return—2.
4. Side stride stand: Hands on hips. Lower trunk forward—1. Return—2.

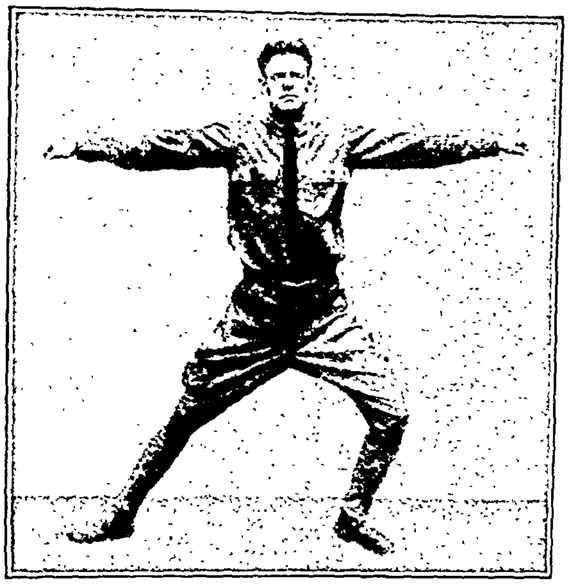
Fig. 18.—Grade V, Exercise 5.

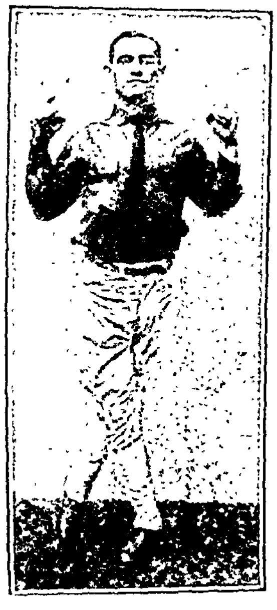
Fig. 20. — Grade VI, Exercise 1.

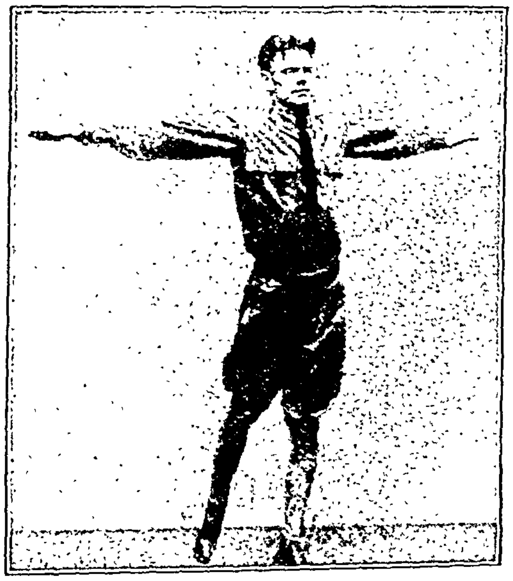
Fig. 21.—Grade VI, Exercise 2.

5. Arms bent for thrust: Swing left leg sideward—1. Return—2. Right—3, 4.

6. Arms bent for thrust, feet closed: Turn trunk left—1. Return—2.
7. Hike, ten minutes; slow, easy step.
8. Raise hands front of shoulders, and inhale—1. Lower and exhale—2.

Grade IV (twenty-five minutes):
1. Raise arms backward—1. Swing arms forupward—2. Return—3, 4.
2. Bend arms for thrust and lower head backward—1. Return—2.
3. Raise left leg forward and arms sideward—1. Return—2. Right—3, 4.
4. Side stride stand: Swing arms forupward—1. Bend trunk forward and touch floor—2. Return—3, 4.
5. Raise heels and raise arms sideupward—1. Bend knees, arms sideward—2. Return—3, 4.
6. Feet closed, arms sideward: Turn trunk left—1. Return—2. Right—3, 4.
7. Hike, fifteen minutes.

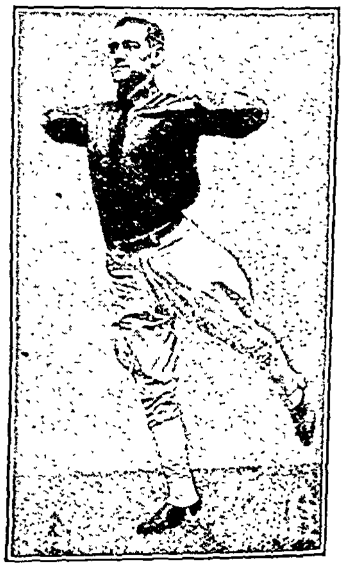
Fig. 22.—Grade VI, Exercise 3.

8. Hands front of shoulders: Straighten arms sideward, palms up and inhale—1. Return and exhale—2.

Grade V (thirty-five minutes):

1. Feet closed, arms bent for thrust: Turn trunk left and thrust right arm forward—1. Return—2. Right—3, 4.
2. Arms bent for thrust: Straighten arms sideward, palms up, raise chest and inhale—1. Return—2.
3. Raise arms sideward and left leg forward—1. Move left leg backward and lower trunk one half forward—2. Return—3, 4.
4. Hands front of shoulders: Lower trunk one half forward and exhale—1. Raise trunk, raise arms sideward and inhale—2.

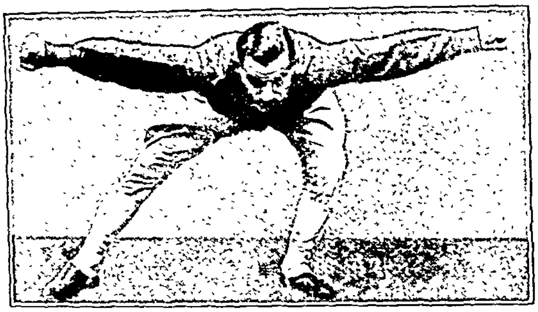

Fig. 23.—Grade VI, Exercise 4.

5. Arms bent for thrust: Lunge left and thrust sideward—1. Return—2. Right—3, 4.
6. Hands on hips: Turn trunk left—1. Bend trunk forward—2. Return—3, 4.
7. Run in place, twenty seconds. Breathing exercises. Repeat the run.
8. Raise arms forward and inhale. Lower sideward and exhale.

The free exercises cover about twenty minutes and should be taken in full time with brisk, snappy rhythm.

Grade VI (sixty minutes):

1. Bend arms for thrust and place left foot backward—1. Lunge left sideward and thrust arms sideward—2. Return—3, 4.
2. Step left forward, raise arms sideward, raise chest and inhale—1. Return—2.
3. Raise left leg backward, hands front of shoulder—1. Lower trunk forward, arms sideward—2. Return—3, 4.
4. Lunge left sideward and bend arms for thrust—1. Thrust arms sideward and lower trunk forward—2. Return —3, 4.

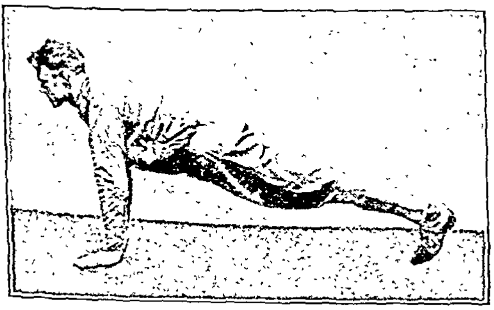

Fig. 24.—Grade VI, Exercise 5.

5. Bend knee and place hands on floor—1. Support lying frontways—2. Bend arms—3. Return—4, 5, 6.
6. Side stride stand, hands on hips: Bend trunk forward —1. Circle trunk left—2. Backward—3. Right—4. Forward—5. Raise trunk—6. Repeat, with circle trunk right.
7. Run in place, one minute.
8. Raise arms forupward and inhale. Lower sidedownward and exhale.

Vigorous game, fifteen minutes. Games: Dodge ball, cage ball, volley ball, relay races, basket ball, tag games, etc.

Hike, twenty minutes. Part of hike in double time and rest in quick time. A swim may be substituted for part of hike.

The exercises are given each morning as outlined. Each afternoon, Grades I, II and III have fifteen minutes of exercises together, and Grades IV, V and VI have fifteen minutes exercises and fifteen minutes hike together.

ANTERIOR DISLOCATION OF ATLAS FOLLOWING TONSILLECTOMY

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FORT MCPHERSON, GA.

This case is so unusual, both as to the etiology and the failure to recognize the condition for a long period, that it is well worth reporting.

REPORT OF CASE

A private, white, aged 22, a farmer before entering the Army, with negative family and past history, was admitted to one of the base hospitals, Dec. 19, 1917, suffering from measles and acute follicular tonsillitis. Tonsillectomy was performed, Jan. 16, 1918; the night of the operation the patient's neck suddenly became stiff, and had remained that way ever since.

He arrived at General Hospital No. 6, in July, 1918, and the following brief history accompanied him: "1. Complaint: Pain in neck, stiffness of cervical muscles which permits of very little motion of the head, except anterior-posteriorly, which motion is limited. 2. Search for focal infection: (*a*) Tonsils (fragments); (*b*) roentgen ray, ostearthritis, first and second cervical vertebrae; (*c*) teeth, abscess tooth; (*d*) Wassermann, negative; (*e*) genito-urinary, negative. 3. Treatment: (*a*) Tonsil fragments removed; (*b*) specimen from tonsil shows gram-negative diplococci; (*c*) tooth removed; (*d*) acetylsalicylic acid for pain, and sodium bicarbonate. Condition on dismissal: No improvement. Etiology: Probably of focal origin (tonsils)."

On arrival of the patient at this hospital, the general condition was good; the weight was normal; the neck was stiff, all motions being resisted in every direction; the soldier held his head in a rigid position with the chin depressed; he complained of pain in the cervical muscles on motion attempted in any direction; he could not rotate his head; he had persistent headaches. The general physical examination was negative except for exaggerated knee reflexes. The diagnosis was undetermined and the patient was sent to the roentgen laboratory for examination.

The roentgen findings were very positive. There was a simple, complete, anterior dislocation of the atlas and skull on the axis (epistropheus), unaccompanied by fracture. Stereoscopic plates showed the odontoid process (dens) free from any bony articulation and intact, the remaining part of the cervical spine being negative. The lateral masses of the atlas were no longer in contact with the superior articular processes of the axis. As the spinal cord must necessarily pass between the odontoid process of the axis and the anterior margin of the posterior arch of the atlas, it seems unreasonable to believe that it would be free from pressure in that small space in a complete anterior dislocation of the atlas, yet the patient had no symptoms of cord pressure. It appears quite evident that the transverse ligament of the atlas (the ligament that holds the odontoid process in contact with the anterior arch of the atlas) was ruptured, for it is hardly reasonable to suppose that the odontoid had slipped from under it. No evidence of ostearthritis was seen in any of the cervical vertebrae. Following the roentgen examination, the nasopharynx was palpated, and the anterior part of the atlas was very easily felt as a large, rounded, bony mass pressing forward and occupying a large part of the cavity.

The soldier was placed under ether anesthesia and manipulation attempted. A gain from 5 to 100 degrees in rotation was noted, and flexion, extension and lateral bending were practically normal. Following the anesthetic the neck appeared more stiff than before, roentgen reexamination showing *no change* in the position of the parts. The soldier declined further manipulations or operation. Suspension of the entire body from the head was of no avail.

COMMENT

There are some very interesting points regarding this case:

1. *History.*—It seems unreasonable to believe that we have the correct history of the case. The tonsillectomy was done under local anesthesia (procain), and this trouble came on suddenly the night of the operation. I have corresponded with the base hospital from which the patient was sent. It is stated that there is no history of trauma, and the patient denies any himself.

Simple anterior dislocation of the atlas.

ANATOMIC POINTS NOTED ON A TRUE LATERAL PLATE OF CERVICAL REGION, OBSERVED IN SIMPLE ANTERIOR DISLOCATION OF THE ATLAS

NORMAL	DISLOCATED ATLAS
1. Posterior pharyngeal wall practically vertical.	1. Posterior pharyngeal wall markedly curved forward, anterior to atlas.
2. Anterior margin of anterior tubercle of atlas in line with anterior margin of body of axis.	2. Anterior tubercle on a more anterior level.
3. Lateral masses of atlas rest on superior articular processes of axis.	3. Lateral masses of atlas on a more anterior level.
4. Odontoid process in contact with anterior arch of atlas.	4. Odontoid process free.
5. Anterior margin of posterior tubercle of atlas on a plane posterior to anterior margin of spinous process of axis.	5. Anterior margin of posterior tubercle on a plane anterior to anterior margin of spinous process of axis.

2. *Error in Diagnosis.*—It is somewhat difficult to believe that such a gross condition as this would pass with a diagnosis of ostearthritis for six months. If any one would have simply palpated or examined the nasopharynx, the condition would have been diagnosed at once. The failure to recognize early such a marked pathologic condition on the roentgen plate seems unpardonable, yet the patient states he was rayed about six times. However, this is the second case of anterior dislocation of the atlas I have observed that has not been recognized on the roentgenogram.

PNEUMONIA AT CAMP FUNSTON

REPORT TO THE SURGEON-GENERAL*

EUGENE L. OPIE, M.D. (ST. LOUIS)
Lieutenant-Colonel, M. C., U. S. Army
ALLEN W. FREEMAN, M.D. (COLUMBUS)
Major, M. C., U. S. Army
FRANCIS G. BLAKE, M.D. (BOSTON)
Captain, M. C., U. S. Army
JAMES C. SMALL, M.D. (CHICAGO)
AND
THOMAS M. RIVERS, M.D. (BALTIMORE)
First Lieutenants, M. C., U. S. Army
CAMP PIKE, LITTLE ROCK, ARK.

This investigation of pneumonia made at the base hospital at Fort Riley includes all cases of pneumonia that have occurred between July 23 and Aug. 31, 1918, at Camp Funston, including Detention Camp No. 1 for white troops and Detention Camp No. 2 for colored troops, in the 311th Cavalry stationed at Fort Riley, at the base hospital, and at the Medical Officers' Training Camp.

During the period of the investigation there has been no large outbreak of pneumonia at Camp Funston. The average number of cases has been two a day, the total number studied being 62. The number of troops in the camp has been approximately 42,000, so that for the month of August the pneumonia rate has not exceeded 1.5 per thousand.

Pneumonia has been of mild type; there have been only three deaths, and empyema has occurred in one instance. The clinical diagnosis has been lobar pneumonia in fifty-five cases and bronchopneumonia in seven cases. The pneumonia observed here has presented no unusual clinical characters, and in the three cases in which necropsy has been performed, there has been lax consolidation of one or more lobes of the lungs.

Pneumonia of this period has in considerable part affected newly drafted negro troops from Southern states, namely, Louisiana and Mississippi. This pneumonia of newly drafted troops has presented characters that deserve special consideration. During our study, cases of pneumonia from two drafts of colored troops have been fairly numerous. In the period from June 19 to 23, 5,982 drafted colored men reached Camp Funston, and were sent to Detention Camp No. 2, located 5 miles from Camp Funston. They were held in detention camp two or three weeks, until assigned to units stationed at Camp Funston. Among these drafted men, between June 15 and August 31, sixty-nine cases of pneumonia have occurred. Among 12,000 white men drafted in June there has been only one case of pneumonia.

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* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of Tables 3 and 13. The complete article will appear in the authors' reprints.

In July there was a similar outbreak of pneumonia in 5,997 newly drafted negroes. They were in great part from Mississippi, and entered Detention Camp No. 2 from July 16 to 20. The greater number of these men were transferred to Camp Funston after periods of from two to three weeks. Among them, in the period from their arrival to August 31, there have been twenty cases of pneumonia. Among 15,000 white troops drafted in July, from the 22d to 27th, eight developed pneumonia.

The incidence of pneumonia among troops in Camp Funston (Chart 1) from June 15 to August 31 is given in Table 1.

These figures suggest at first sight that pneumonia is much more common in colored than in white troops, but an analysis of the state of origin of newly drafted colored men shows that comparison is possible only between men from the same states (Table 2).

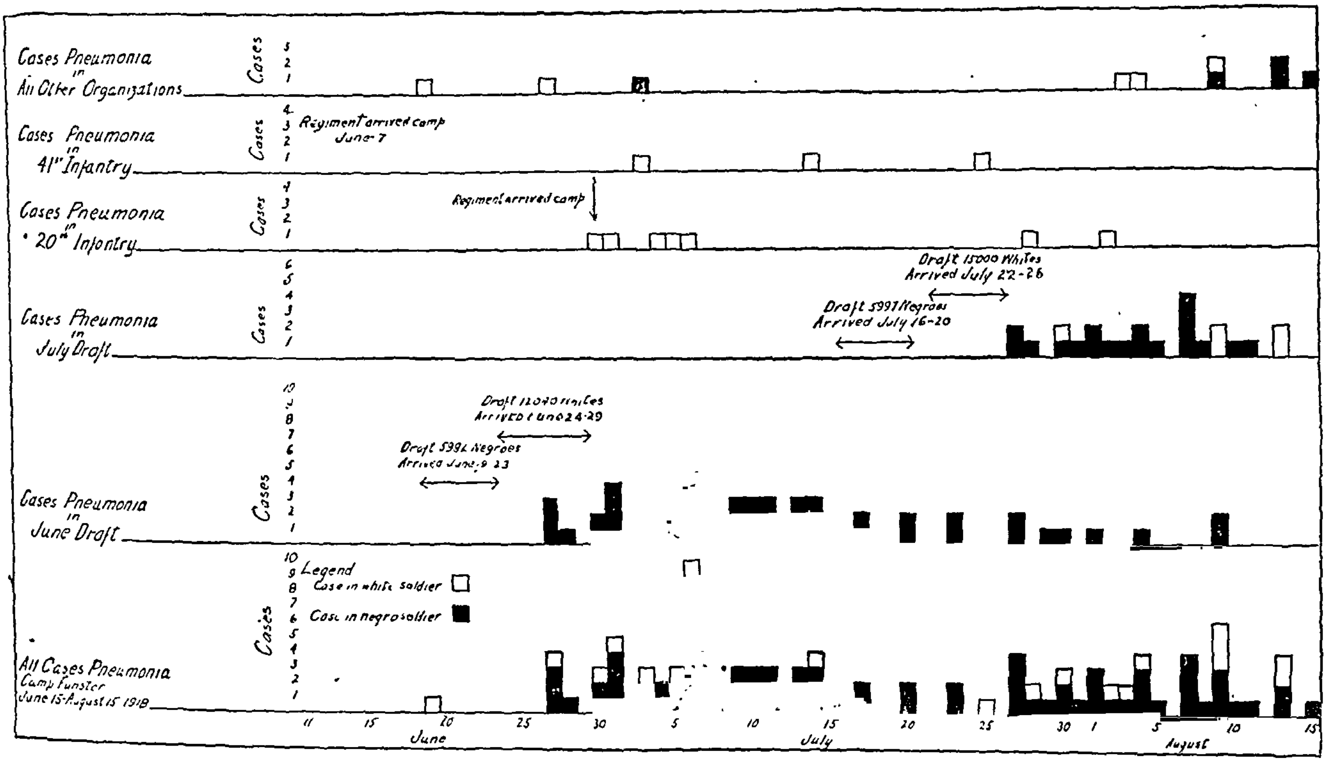

Chart 1.—Pneumonia at Camp Funston, from June 15 to Aug. 15, 1918.

Figures for one draft are not comparable with those from another, because the periods of observation differ, and departure from the camp of units formed from different drafts modifies the exact accuracy of the figures for each draft; but these factors will not alter the relations indicated in the table. Pneumonia has been common in negro drafts from different states in the order of their geographic location from south to north, namely, Louisiana, Mississippi (factor of time prevents comparison of these two states), Oklahoma, Missouri, Kansas and Nebraska. It is evident that the white and colored drafts cannot be compared, since none of the white troops came from Louisiana and Mississippi.

TABLE 1.—INCIDENCE OF PNEUMONIA AT CAMP FUNSTON

	No. of Troops	Pneumonia No. of Cases	 Per Thousand
White			
In Camp Funston prior to June 15..	14,198	7	0.49
20th Infantry, which arrived June 30	2,278	8	3.51
June draft	12,000	1	.08
July draft	15,000	8	.53
August draft	6,006	0	.00
Total	49,482	24	.48
Colored			
In Camp Funston prior to June 15..	1,700	4	2.35
June draft	5,982	69	11.53
July draft	5,997	19	3.17
August draft	3,934	2	0.51
Total	17,613	94	5.34

TABLE 2.—PNEUMONIA AMONG COLORED TROOPS ACCORDING TO STATES

Drafts of Colored Men by States:	No. of Troops	Pneumonia No. of Cases	 Per Thousand
June:			
Missouri	482	0	.00
Oklahoma	500	2	4.00
Louisiana	5,000	67	13.40
July:			
Kansas	1,009	0	.00
Missouri	988	0	.00
Mississippi	4,000	19	4.75
August:			
Nebraska	236	0	.00
Kansas	468	0	.00
Missouri	3,230	2	.62

BACTERIOLOGIC STUDY OF PNEUMONIA

In view of the selective occurrence of pneumonia in newly drafted colored troops from Louisiana and Mississippi, it is important to know the etiologic factors concerned in the production of the pneumonia that has occurred. Bacteriologic study has been made of the sputum of all pneumonia patients entering the base hospital between July 23 and August 31 (Table 3). White mice have been inoculated intraperitoneally with sputum, and the Avery method for identification of pneumococci has been used. Cultures from throat swabs have been examined.

The incidence of pneumococcus, *Streptococcus hemolyticus* and *Bacillus influenzae* in the sputum of newly drafted negroes is given in Table 4. The observations made on the June draft are almost wholly limited to colored men from Louisiana, exceptions being one case from Mississippi and one from Oklahoma; observations for the July draft are on negroes from Mississippi.

With pneumonia of drafted colored men from Louisiana and Mississippi, organisms which are frequently found in the mouths of normal individuals, namely, pneumococcus IV, III and Atypical II, have been found in twenty-five of thirty-five cases, that is, in 71 per cent. No pneumococci of Type II were found. In contrast to this relation, the distribution of various pneumococcus types among pneumonia patients from a variety of organizations located at or near Camp Funston has closely approximated that of civil life, Types I and II constituting the greater number of cases. Among these miscellaneous cases of pneumonia, the percentage of mouth types has been only 37.5 per cent., in sharp contrast with that found in the pneumonia among newly drafted Southern negroes. Of eight white men with pneumonia from the July draft (four from Missouri and four from Kansas), four (50 per cent.) had pneumococcus Type I, two Type II (25 per cent.), and two Type IV (25 per cent.).

TABLE 4.—ORGANISMS IN SPUTUM OF NEWLY DRAFTED NEGROES

JUNE DRAFT

Pneumococcus, Type I	6
Pneumococcus, Type II	0
Pneumococcus, Type II, atypical	3
Pneumococcus, Type III	1
Pneumococcus, Type IV	5
Hemolytic streptococcus alone	0
Total	15

Bacillus influenzae was found in two instances, associated with pneumococcus Type I. Hemolytic streptococcus was found in throat swab once with pneumococcus atypical Type II, once with Type IV. It was not present in the sputum of these patients.

JULY DRAFT

Pneumococcus, Type I	3
Pneumococcus, Type II	0
Pneumococcus, Type II, atypical	4
Pneumococcus, Type III	4
Pneumococcus, Type IV	8
Hemolytic streptococcus alone	1
Total	20

Bacillus influenzae has been found once, associated with pneumococcus atypical Type II, once with Type III, and once with Type IV. Hemolytic streptococcus has been found in throat swab once with bronchopneumonia. The sputum of this patient contained pneumococcus atypical Type II, but no hemolytic streptococci.

For completeness, the three cases of pneumonia from the August draft are cited below:

AUGUST DRAFT

Pneumococcus, Type I	1
Pneumococcus, Type II, atypical	1
Pneumococcus, Type IV	1
Total	3

For comparison with the pneumonia of the June and July drafts cited above, other cases of pneumonia scattered among eleven organizations, and with three exceptions in white men, are summarized below.

From eleven organizations at or near Camp Funston:

Pneumococcus, Type I	9
Pneumococcus, Type II	5
Pneumococcus, Type II, atypical	0
Pneumococcus, Type III	1
Pneumococcus, Type IV	8
Hemolytic streptococcus alone	1
Total	24

Bacillus influenzae has been found once in association with pneumococcus Type II and twice with Type IV. Hemolytic streptococci have been found in throat swab once with Type I (also in sputum), once with Type III, and once with Type IV.

It is noteworthy that two of the small number of cases of Type I pneumonia among Louisiana negroes, and two among Mississippi negroes, occurred in one small unit, namely, the Twenty-Second Provisional Company of the 164th Depot Brigade, a body containing 250 men. It seems not improbable that the members of this company were brought into contact with Type I pneumococcus after formation of the company. An examination of the saliva of twenty-five healthy members of this company disclosed one man who harbored in his mouth pneumococcus Type I.

Among sixty-two cases of pneumonia, pneumococcus Type II was found only five times. It is noteworthy that two of these four instances of Type II occurred in a small body of enlisted men of the Medical Officers' Training Camp in Quarters 4 M, consisting of a group of tents. The onset of the second of these cases was on August 17. August 22 the saliva of thirty-two men then in these quarters was examined for penumococcus. No carriers of pneumococcus Type II were found.

Pneumococci and Other Bacteria in Mouths of Healthy Men in Military Organizations at Camp Funston.—Since the groups of cases that have been mentioned show variations, it has seemed desirable to determine if corresponding variations might be found in the incidence of pneumococcus in the mouths of healthy men of the organizations in which pneumonia occurred. It was further desirable to determine if carriers of pneumococcus Types I and II were present in units in which several instances of corresponding types of pneumonia had occurred. At the time of the investigation colored troops in Detention Camp No. 2, where pneumonia had been most prevalent, were in large part from the July draft.

Saliva from twenty-five men of the Twenty-Second Provisional Colored Company of the 164th Depot Brigade was injected into the peritoneal cavities of mice, and the micro-organisms that developed were determined (Table 5). This company was selected because four instances of pneumonia, due to pneumococcus Type I, had occurred in it.

TABLE 5.—ORGANISMS IN SALIVA OF MEN OF 164TH DEPOT BRIGADE, 22D PROVISIONAL COLORED COMPANY

	Number	Per Cent.
Pneumococcus, Type I	1	4
Pneumococcus, Type II	0	0
Pneumococcus, Type II, atypical	1	4
Pneumococcus, Type III	2	8
Pneumococcus, Type IV	13	52
No pneumococci found	8	32
Total	25	

Bacillus influenzae was found six times, and *Streptococcus hemolyticus* once.

Since twelve of our cases of pneumonia occurred in the Third Development Battalion, an organization in which colored men partially disqualified for military service are given training, this organization was next selected for study. The saliva of twenty-five men from Company D was examined, with the result given in Table 6.

For comparison with the observations made on colored organizations, saliva from twenty-five white men was tested (Table 7). The Seventieth Infantry was selected because no pneumonia had occurred in this organization within the period of our observation.

Examination of the records of the hospital showed that the man from whom pneumococcus Type I was obtained had been admitted to the base hospital, May 27, 1918, and returned to duty, July 10, five weeks before examination of the saliva. While in the hospital he suffered with acute bilateral suppurative otitis media and pyorrhea alveolaris; tonsillectomy was performed.

The saliva of twenty-seven men from the 210th Engineers, a white regiment in which no pneumonia had occurred during our study, was examined, with the results given in Table 8.

TABLE 6.—ORGANISMS IN SALIVA FROM MEN OF THIRD DEVELOPMENT BATTALION, CO. D

	Number	Per Cent.
Pneumococcus, Type I	0	0
Pneumococcus, Type II	0	0
Pneumococcus, Type II, atypical	3	12
Pneumococcus, Type III	3	12
Pneumococcus, Type IV	6	24
No pneumococci found	13	52
Total	25	

Bacillus influenzae was found eleven times. *Streptococcus hemolyticus* five times, and *Bacillus mucosus-capsulatus* twice.

TABLE 7.—ORGANISMS IN SALIVA OF MEN OF SEVENTIETH INFANTRY

	Number	Per Cent.
Pneumococcus, Type I	1	4
Pneumococcus, Type II	0	0
Pneumococcus, Type II, atypical	1	4
Pneumococcus, Type III	1	4
Pneumococcus, Type IV	15	60
No pneumococci found	7	28
Total	25	

Bacillus influenzae was found eleven times, and *Streptococcus hemolyticus* twice.

In view of the occurrence of two cases of pneumonia associated with pneumococcus Type II, in Quarters 4 M of the Medical Officers' Training Camp, five days after the admission of the second of these patients with Type II pneumonia to the hospital, search was made for pneumococci in the mouths of thirty-two men from the squad occupying these quarters. The examination of these normal men had the result given in Table 9.

The observations indicate that approximately two thirds of the men in the organizations examined harbor pneumococci, with few exceptions belonging to the groups that have heretofore been found in the mouths of healthy men. In view of the uniformity of the results obtained, the examinations were discontinued.

The high incidence of *Bacillus influenzae* in the mouths of healthy men is noteworthy. It serves as a basis for comparison with conditions such as influenza, bronchitis, and other diseases of the respiratory passages. Its significance in relation to the existence of an epidemic of influenza in this camp during March, April and May cannot be determined.

COMMENT

The foregoing study has shown that lobar pneumonia caused by pneumococcus has occurred with unusual frequency among negroes drafted from Louisiana and Mississippi. The types of pneumococcus concerned are in great part those that occur in the mouths of healthy individuals, namely, Atypical Type II, Type III and Type IV. Type I has been less frequent than with the pneumonia of civil life, and Type II has not been found in this group of cases. Predominance of mouth types has been more conspicuous in the more recently drafted troops from Mississippi.

To explain the occurrence of this pneumonia of newly drafted men, two groups of factors may be considered: First, conditions that depress resistance, such as exposure to cold or wet, exposure to dust, fatigue from the unusual exertions of military training, and the reaction from typhoid-paratyphoid inoculation. Second, conditions that favor transmission of various respiratory infections, when large numbers of men are brought into intimate contact with one another.

We have obtained no evidence that these negro drafts which have developed pneumonia have been exposed to cold or wet during transportation to the camp, or after their arrival. Organizations in which pneumonia has prevailed have not been exposed to dust in greater degree than those which have been relatively free from it. Negro troops at Detention Camp No. 2 have not been required to perform prolonged or severe drill; their work has not been heavier than that of white troops.

There is little support for the suggestion that typhoid inoculation has had any part in the production of the disease. Although white drafts and colored drafts, both from Missouri and Kansas, and from Mississippi and Louisiana, have all been subjected to the same procedure, pneumonia has been conspicuously selective.

TABLE 8.—ORGANISMS IN SALIVA OF MEN OF 210TH ENGINEERS

	Number	Per Cent.
Pneumococcus, Type I	0	0.0
Pneumococcus, Type II	0	0.0
Pneumococcus, Type II, atypical	1	3.7
Pneumococcus, Type III	1	3.7
Pneumococcus, Type IV	14	51.9
No pneumococci found	11	40.7
Total	27	

Bacillus influenzae was found three times, *Streptococcus hemolyticus* once, and *Bacillus mucosus-capsulatus* once.

TABLE 9.—ORGANISMS IN MOUTHS OF MEN FROM QUARTERS 4 M, MEDICAL OFFICERS' TRAINING CAMP

	Number	Per Cent.
Pneumococcus, Type I	0	0.0
Pneumococcus, Type II	0	0.0
Pneumococcus, Type II, atypical	1	3.1
Pneumococcus, Type III	2	6.3
Pneumococcus, Type IV	21	65.6
No pneumococci found	8	25.0
Total	32	

Bacillus influenzae was found sixteen times, *Streptococcus hemolyticus* twice, and *Bacillus mucosus-capsulatus* four times. No carriers of pneumococcus Type II were found.

The small number of cases of pneumonia under observation has offered scant opportunity to study the epidemiology of various types classified with regard to the type of infecting pneumococcus. The small amount of evidence at hand tends to favor the view that susceptible individuals from far Southern states are brought into intimate contact, perhaps for the first time, with types of pneumococci capable of producing in them lobar pneumonia. These types are at first widely distributed pneumococci, such as frequently occur in the mouths of normal individuals. We have obtained some evidence to support the view that introduction of Type I pneumococcus into a group of drafted Southern negroes is followed by pneumonia referable to this organism. Four of the nine cases of Type I pneumonia occurred in the Twenty-Second Provisional Company of the 164th Depot Brigade, and examination of twenty-five healthy men from this company disclosed one carrier. The absence of Type II pneumonia among drafted negroes from Louisiana and

Mississippi indicates that they had not come into contact with the corresponding pneumococcus.

HEMOLYTIC STREPTOCOCCI

Among the cases of pneumonia that we have studied, hemolyzing streptococci have had an insignificant part. There have been only two cases of pneumonia in which the result of bacteriologic examination has suggested that this organism was concerned in the production of the disease. There has been no evidence that streptococci have produced complications during the course of pneumonia caused by pneumococci. During the period of our study, 112 patients with measles have been admitted to the base hospital at Fort Riley. There has been no instance of associated pneumonia, and otitis media, the sole complication, has occurred in only two instances. In both cases, staphylococci were obtained from the discharge.

Hemolytic Streptococci in the Throats of Healthy Men.—Observations on the occurrence of hemolytic streptococci in the mouths of normal men and of patients with measles and with pneumonia have been made here in order to explain, if possible, the infrequency of those respiratory complications due to streptococci which have greatly increased the severity of measles in some other camps.

In swabbing the throat the attempt was made to produce gagging. The swab was then quickly touched to both tonsils and lastly to the pharynx. The swab was introduced into a tube containing broth, and freely twirled. The broth tube was brought to the laboratory, and melted agar-agar containing 5 per cent. of defibrinated horse blood was inoculated with a loopful of the broth and poured into a Petri plate. A second loopful of the broth was streaked over the surface of one half of the plate, when solidified. Hemolytic streptococci were identified by the methods for the isolation and identification of *Streptococcus hemolyticus* adopted by the Medical Department of the Army.

The throats of 274 men on duty have been examined in the organizations listed in Table 10.

TABLE 10.—INCIDENCE OF HEMOLYTIC STREPTOCOCCI

	Number Examined	Hemolytic Streptococci Present	Per Cent. with Hemolytic Streptococci
White men:			
70th Infantry	24	4	16.7
210th Engineers, Co. C	26	6	23.1
164th Depot Brigade, Co. 15	50	10	20.0
164th Depot Brigade, Co. 18	51	13	25.5
164th Depot Brigade, Co. 28	50	13	26.0
Total	201	46	22.9
Colored men, all from Detention Camp No. 2:			
164th Depot Brigade, Prov. Co. 22	25	6	24
3d Development Bn., Co. A	24	3	12.5
3d Development Bn., Co. D	24	5	20.8
Total	73	14	19.2
Men resident in the hospital:			
Laboratory workers	10	3	30.0
Patients in surgical ward	14	4	28.6
Total	24	7	29.2

The figures cited indicate that one in four or five of healthy men in this camp harbor hemolytic streptococci, and this proportion is not materially influenced by residence in the hospital.

Hemolytic Streptococci with Measles.—In view of the foregoing observation, it was surprising to find that hemolytic streptococci were present in only three of 112 measles patients at the time of their admission to the hospital. The hospital routine for measles is as follows: After a throat swab has been made, the throat is gargled with 20 per cent. argyrol, and sprayed with argyrol three times a day. The same solution is dropped into the conjunctival sac to relieve discomfort caused by conjunctivitis. Patients in bed are separated by sheets. Convalescent patients are not strictly segregated, and assist in the care of patients in bed. Face masks are not worn. Hemolytic streptococcus carriers remain in the ward. Eating utensils are sterilized. Complications due to streptococcus have not been present during the period of our investigation.

The incidence of hemolytic streptococci in the throats of patients with measles (Table 11A), was very small on admission, but later on in the disease gradually increased. On admission to the hospital only three of 112 patients with measles harbored hemolytic streptococci. In a period from the third to the tenth day in the hospital, eighty-six patients were reswabbed and hemolytic streptococci were found in eleven (12.8 per cent.); between the eighth and the twenty-third day, fifty-eight were swabbed a third time, and fourteen (24.1 per cent.) were found to carry the organism.

TABLE 11.—HEMOLYTIC STREPTOCOCCI WITH MEASLES AT CAMP FUNSTON

A. All Measles Patients Admitted to the Wards

	Days in Hospital	Approximate Day of Disease	No. of Patients Swabbed	Number with Hemolytic Streptococci	Per Cent. with Hemolytic Streptococci
First swabbing	0 to 1	1 to 8	112	3	2.67
Second swabbing	3 to 10	4 to 16	86	11	12.79
Third swabbing	8 to 23	12 to 26	58	14	24.14

The first swabbing represents the findings on admission, in the series of 112 cases; 86 patients were swabbed twice; 58 patients were swabbed three times.

B. Hemolytic Streptococci with Measles in 164th Depot Brigade, Company 28

	Days in Hospital	No. of Those Swabbed	Number with Hemolytic Streptococci	Per Cent. with Hemolytic Streptococci
First swabbing	0 to 1	23	0	0
Second swabbing	3 to 9	23	4*	17.39
Third swabbing	10 to 21	21	4	19.05
Normal men of Co. 28		50	13	26.00

* Two cases positive for hemolytic streptococci on this swabbing were negative on subsequent swabbing.

This is a comparison of the percentage of carriers among patients with measles spending less than ten days in the hospital, and that of patients spending more than ten days in the hospital; it also compares the percentage of carriers among the convalescents from measles and that among the normal men on active duty in the same company.

C. Hemolytic Streptococci with Measles in Seventieth Infantry

First swabbing	0 to 1	38	0	0
Second swabbing	5 to 9	25	1	4.0
Third swabbing	8 to 17	12	2	16.7
Normals on duty with 70th Inf.		24	4	16.7

This represents a series of 38 cases of measles from the 70th Infantry and the findings on admission. It shows that 25 patients were swabbed twice, with the results of the second swabbing made after from 5 to 9 days in the hospital; it shows that 12 patients were swabbed three times, and the findings on third swabbing after from 8 to 17 days in the hospital. A series of normals from the same organization is introduced for comparison.

Comparison of these figures for measles with those for normal men suggests the possibility that hemolytic streptococci temporarily disappear from the throat during the early stage of measles, at a time when the rash is present. During the period of our study, an outbreak of measles occurred in the Twenty-Eighth Company of the 164th Depot Brigade; twenty-three patients from this company were admitted to the hospital (Table 11B). On admission, throat swabs disclosed no carriers of hemolytic streptococcus, yet subsequent examinations, made between the third and the ninth day after admission, demonstrated that four of twenty-three patients (17.4 per cent.) harbored hemolytic streptococci; between the tenth and twenty-first days, four of twenty-one patients examined (19.1 per cent.) were found to be carriers of the organism. The throats of fifty healthy men in Company 28 were examined, and 26 per cent., a figure closely approximating that obtained for other organizations, were found to contain hemolytic streptococci.

From various companies of the Seventieth Infantry, thirty-eight patients with measles were admitted to the hospital (Table 11C), and no hemolytic streptococci were found in admission. Subsequently hemolytic streptococci were obtained from the throats of one of twenty-five men examined from the fifth to the ninth day of their stay in the hospital, and among twelve examined from the eighth to the seventeenth day, hemolytic streptococci were found in two (16.7 per cent.). Many of these cases of measles occurred late in August, and could not be followed throughout their stay in the hospital. From various companies of the Seventieth Infantry, twenty-four men on duty were examined, and four (16.7 per cent.) were found to harbor hemolytic streptococci. The observations made on these two organizations furnish further evidence that hemolytic streptococci have temporarily disappeared from the throats of men attacked by measles.

Hemolytic Streptococci with Pneumonia.—Throat swabs were made from sixty-one cases of pneumonia. In eight, hemolytic streptococci were found; in two instances of bronchopneumonia, hemolytic streptococci, but no pneumococci, were found in the sputum, and there is little doubt that pneumonia was caused by hemolytic streptococci. In one instance, hemolytic streptococci were found in the sputum but not in the throat swab. It is noteworthy that the proportion of patients with pneumonia harboring hemolytic streptococci, 14.8 per cent., is less than that of the normal men.

BACTERIOLOGY OF BRONCHITIS

With the purpose of determining what micro-organisms are associated with bronchitis, and the possible relation of this disease to bronchopneumonia, throat swabs were made in the small number of cases, namely, thirteen, available for study, and at the same time sputum was injected into mice. The results of bacteriologic examinations are given in Table 12.

TABLE 12.—BACTERIOLOGIC FINDINGS IN BRONCHITIS

	Throat Swab	Sputum
1.	Negative	B. influenzae and Pneumococcus IV
2.	Hemolytic streptococcus	No examination
3.	Hemolytic streptococcus	No examination
4.	Negative	Pneumococcus IV
5.	Hemolytic streptococcus	Pneumococcus IV
6.	Negative	B. influenzae and Pneumococcus IV
7.	Hemolytic streptococcus	No examination
8.	Negative	B. influenzae and Pneumococcus IV
9.	Negative	B. influenzae and Pneumococcus IV
10.	Negative	B. influenzae and Pneumococcus IV
11.	Negative	B. influenzae and Pneumococcus II atypical
12.	Negative	Pneumococcus IV
13.	Negative	B. influenzae and Pneumococcus IV

Pneumococcus Type IV or in one instance Atypical Type II was found in all cases in which the sputum was examined. In four of thirteen cases (30.7 per cent.) hemolytic streptococci were found. This proportion, uncertain by reason of the small number of cases, is greater than that found in Camp Funston among normal men.

Bacillus influenzae was found in seven of thirteen cases of bronchitis, that is, in 53.8 per cent. of the cases examined and in 70 per cent. of those examined by mouse inoculation. The highest percentage of incidence of *Bacillus influenzae* in any group of normal men was 50 per cent. in men from Quarters 4 M, Medical Officers' Training Camp, examined by mouse inoculation. In cases of bronchitis with *Bacillus influenzae* and in one case with *Streptococcus hemolyticus* these organisms were associated with pneumococci.

It is significant that either hemolytic streptococci or *Bacillus influenzae* was found in all but two of thirteen cases of bronchitis. Even should we assume that none of these organisms is the primary cause of the disease, it is probable that their multiplication and doubtless their invasion of the lower respiratory passages has occurred with it.

There has been no opportunity to study the bacteriologic flora of the throat or of the sputum of patients suffering with cases diagnosed as influenza.

HISTORY OF PNEUMONIA AT CAMP FUNSTON

It has seemed to us desirable to obtain an insight into the history of pneumonia at the camp since its organization so that we might determine what types of pneumonia have occurred and what relation they bear to the outbreak that we have observed. Through the cordial cooperation of the officers of the hospital, we have tabulated from the records the incidence of pneumonia from the establishment of Camp Funston in August, 1917, up to the present date, Aug. 31, 1918. Chart 2 shows changes in the incidence of pneumonia. Primary pneumonia, pneumonia secondary to measles and a very small group of pneumonias definitely secondary to scarlet fever, diphtheria, mumps and surgical operations have been charted separately.

To obtain further insight into the relationship of pneumonia to other diseases, conditions affecting the air passages have been charted, namely, bronchitis and a disease that has been designated "influenza."

From Sept. 20, 1917, to November 8, with an increasing number of newly recruited troops in the camp, there was a gradual increase in the number of cases of pneumonia. Subsequently with slight fluctuation, there has been a continuous incidence of from one to five or even more cases per day, interrupted at only one time, namely, from May 26 to June 26, 1918, when pneumonia well-nigh disappeared. This relatively steady incidence has been twice augmented by sharply defined outbreaks of pneumonia, namely, (1) between November 8 and December 25, when cases of pneumonia following measles occurred in large number, and (2) between March 1 and May, 26, 1918, when there was a far greater number of cases of pneumonia occurring in very accurate conformity with an outbreak of influenza.

Outbreak of Pneumonia Due to Measles from Nov. 8 to Dec. 25, 1917.—By its relation to measles, this group of cases is sharply defined. Pneumonia was designated bronchopneumonia in ninety-two cases (78.6 per cent.) and lobar pneumonia in twenty-five cases (21.4 per cent.). It was associated with a high incidence of empyema and a mortality of 45.3 per cent. The disease doubtless exhibited close similarity with the pneumonia following measles studied elsewhere.

Outbreak of Pneumonia Occurring in Association with Influenza Between March 1 and May 26, 1918.—Before considering this subject, it is desirable to describe the disease which has been diagnosed influenza, which prevailed continuously since the establishment of the camp, and which within a few days swept as a great epidemic through Camp Funston. The disease, save in very mild cases, was accompanied by fever with elevation of temperature to from 99 to 102 or 103 F. The patient was prostrated, had severe headache, and complained of aching pains in the muscles of the back of the neck, of the lumbar region and at times of the arms or legs. Only a few patients had coryza; and cough, with other evidence of bronchitis, was unusual. With physical signs of bronchitis this diagnosis was added to that of influenza. At the beginning of the outbreak of the disease some patients were sent to the meningitis ward as suspects on account of headache and pain in the back of the neck. Some patients had abdominal pain and were first sent to the surgical ward. Later it became evident that there were no characteristic physical signs associated with the disease. After from twenty-four to forty-eight hours the temperature fell and the patient felt better.

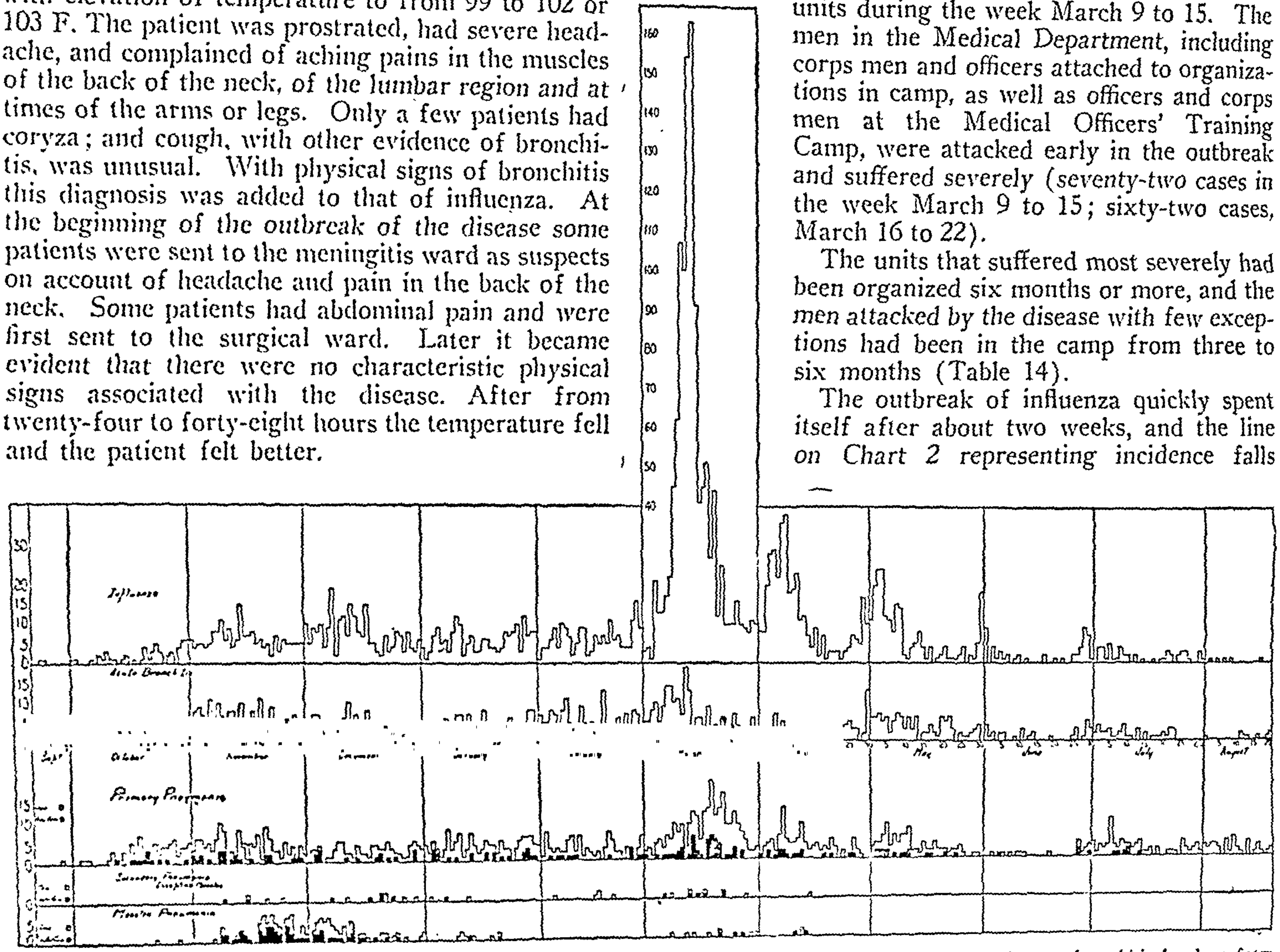

Chart 2.—Respiratory diseases at Camp Funston: admissions to base hospital from pneumonia, influenza, and acute bronchitis by days from Sept. 20, 1917, to Aug. 20, 1918.

Between March 4 and March 29, 1,127 men from Camp Funston, which then contained 29,000 men, were sent to the base hospital with the disease just described, and many more were cared for in the infirmaries of the camp. A dust storm occurred, Saturday, March 9, and on Monday, March 11, 107 patients with "influenza" were admitted to the hospital; from the 342d Field Artillery alone thirty-eight enlisted men and six officers were admitted. This explosive outbreak is well shown on the chart. The ascent of the line representing incidence of the disease before March 9 gives little support to the view held by many who observed the outbreak, that the dust storm was responsible for it.

Table 13 shows the incidence of influenza in various organizations. The first units attacked by the outbreak in March were the 164th Depot Brigade (*white*) with fourteen cases in the week March 2 to 8, eighteen cases, March 9 to 15, and seventy-seven cases, March 15 to 22; and the 317 Headquarters Trains of the Ninety-Second Division, in which thirteen cases occurred on March 8 and forty-nine additional cases in the following week. The 342d Field Artillery was attacked early; it had suffered with the disease more severely than other units in the camp during the entire time since the organization of the camp in September. From this regiment, 163 patients were admitted to the hospital during the week March 9 to 15, but in the subsequent weeks there were few cases.

Every organization in the camp except the 314th Engineers and 341st Artillery was attacked; only five patients were admitted to the hospital from these two units during the week March 9 to 15. The men in the Medical Department, including corps men and officers attached to organizations in camp, as well as officers and corps men at the Medical Officers' Training Camp, were attacked early in the outbreak and suffered severely (seventy-two cases in the week March 9 to 15; sixty-two cases, March 16 to 22).

The units that suffered most severely had been organized six months or more, and the men attacked by the disease with few exceptions had been in the camp from three to six months (Table 14).

The outbreak of influenza quickly spent itself after about two weeks, and the line on Chart 2 representing incidence falls as suddenly as it rose. The disease did not disappear, but the daily incidence was not much in excess of that prior to the outbreak. Later at intervals of somewhat less than one month, a second, a third and even a fourth and fifth wave of the disease is represented in the admissions to the hospital. Each is less severe than the one preceding. The second wave, beginning April 3, reached a maximum on April 8, twenty-five days after that of the primary outbreak, and then quickly disappeared within ten days after its onset. It was almost wholly confined to the 164th Depot Brigade and affected with few exceptions white and colored drafts which had arrived at the camp four or five days before the onset of the disease.

The third wave of influenza began April 28 and reached a maximum on May 3, twenty-six days after that of the second. This outbreak occurred in a group of recently drafted white men in the Depot Brigade. They were attacked one or two days after their arrival. The outbreak lasted about two weeks.

A fourth insignificant outbreak is represented by a group of twenty-seven cases which occurred from May 30 to June 1 in a group of drafted white men who had been in camp eight days. These cases occurred several days after the drafted men had been attached to the Fortieth Infantry. June 25, a few more cases occurred in colored men drafted from five to eight days.

This disease having the characteristics commonly attributed to influenza is not one marked by characteristic symptoms. In the presence of an outbreak, such as that just described, there can be no doubt concerning its identity, even in the absence of bacteriologic studies. It seems probable that occasional cases are recognized with much less certainty. Nevertheless, there is a remarkable similarity between the curve representing the incidence of influenza and that representing primary pneumonia, and to a less degree that representing bronchitis from the establishment of the camp to the present date. There had been a continued fairly high but fluctuating incidence of all three diseases until March of the present year. It is significant that the greatest incidence of pneumonia affecting troops in this camp occurred from March 9 to March 29, coincident and immediately following the first outburst of influenza, the maximum for pneumonia being five days after the maximum for influenza. Coincident with the two subsequent waves of influenza there were corresponding exacerbations in the incidence of pneumonia, the maximal points for influenza and pneumonia being almost coincident on April 7 to 8 and again on May 5 to 6; but in general, pneumonia has lagged behind influenza. The coincidence of influenza and pneumonia is further emphasized by the almost complete disappearance of the two diseases in the period from June 3 to 26 and their subsequent reappearance at the end of June and again to a slight extent in July.

To obtain further evidence of the relation of the outbreak of pneumonia to that of influenza, incidence of the two diseases in the organizations attacked has been compared (Table 13). With each wavelike outbreak of influenza there has been a similar outbreak of pneumonia, limited almost entirely to the organizations that had suffered with influenza. Following the first outbreak of influenza, which attacked both old and new organizations, there was a similar widely scattered prevalence of pneumonia. The organizations that suffered most severely were the 164th Depot Brigade, the Medical Department and the 317th Headquarters Trains of the Ninety-Second Division and the 314th Trains (white). These organizations had all suffered very severely with influenza. Organizations which showed the highest incidence of bronchitis were the same as those which suffered most severely with influenza, namely the Depot Brigade (white), the Medical Department, the 342d Field Artillery and the 317th Trains (colored) of the Ninety-Second Division and the 314th Trains (white).

Accompanying the second wave of influenza, which attacked white and colored drafts of the 164th Depot Brigade and reached its maximum on April 8, there was an outbreak of pneumonia limited to the white and colored sections of the draft organization.

Accompanying the third wave of influenza, which was in part limited to the white drafts of the 164th Depot Brigade, the corresponding outbreak of pneumonia was almost exclusively in the same organization.

The epidemic of influenza first attacked the organizations which had been at Camp Funston during six months or more. It seems to have infected all susceptible individuals and to have thus spent itself. Subsequent waves of influenza occurred when newly drafted men were brought into the camp in April and again in May. Table 14 shows that pneumonia, like influenza, during the primary epidemic of March, attacked in great part men resident several months in the camp; 83.1 per cent. of those attacked by influenza and 72.2 per cent. of those attacked by pneumonia had been in camp more than three months. The pneumonia of April, like the influenza which it followed, was in great part in men who had been in the camp a short time. Only 16.5 per cent. of those with influenza, and 18.2 per cent. of those with pneumonia, had been in the camp more than three months, whereas 70.2 per cent. with influenza and 59.6 per cent. with pneumonia had been in the camp less than one month.

TABLE 14.—LENGTH OF SERVICE OF PATIENTS WITH INFLUENZA, PNEUMONIA AND ACUTE BRONCHITIS

	Under 1 Month		1-3 Months		Over 3 Months		Total
	Cases	Per Cent.	Cases	Per Cent.	Cases	Per Cent.	Cases
Influenza:							
March	95	8.2	92	7.9	969	83.9	1,156
April	255	70.2	49	13.4	60	16.5	364
May	140	66.8	36	17.1	34	16.1	210
Pneumonia:							
March	37	15.5	29	12.2	172	72.2	238
April	59	59.6	22	22.2	18	18.2	99
May	27	29.3	44	47.8	21	22.8	92
Acute Bronchitis:							
March	29	14.8	32	16.3	135	68.9	196
April	31	27.8	26	31.7	25	30.5	82
May	38	33.9	45	40.2	29	25.9	112

In May the figures representing the duration of residence in camp of those with pneumonia do not show the same close agreement with the figures representing influenza that is exhibited by the corresponding figures for April. The majority of cases of influenza occurred during the first month in camp, whereas the majority of cases of pneumonia occurred in the period between one and three months after arrival in camp.

The records of the hospital indicate that the pneumonia which accompanied influenza was lobar pneumonia and not bronchopneumonia. During the prevalence of pneumonia following measles in November and December, 1917, 21.4 per cent. of the cases of measles pneumonia were classified as lobar, and 78.6 per cent. as bronchopneumonia. Deaths occurred in 45.3 per cent. of the cases. Table 15 shows the distribution of lobar and bronchopneumonia and the percentage of deaths in the months of March, April and May.

The relatively low mortality of this outbreak of lobar pneumonia is in contrast with the higher mortality of the bronchopneumonia of measles. It is not possible to state what micro-organisms were concerned in the production of the lobar pneumonia following influenza, but it seems improbable that it was the hemolytic streptococcus which produces the fatal bronchopneumonia of measles. It is noteworthy that the fatality of pneumonia diminished during the outbreaks of April and May.

TABLE 15.—PNEUMONIA IN MARCH, APRIL AND MAY

	Lobar Pneumonia		Bronchopneumonia		Mortality	
	No. Cases	Per Cent.	No. Cases	Per Cent.	No. Deaths	Per Cent.
March	223	93.7	15	6.3	48	20.2
April	92	92.9	7	7.1	16	16.2
May	90	97.9	2	2.1	13	14.1

SUMMARY

Pneumonia which has occurred at Camp Funston since the establishment of the camp may thus be classified:

1. Pneumonia of a relatively stationary camp population. It resembles the pneumonia of civil life, and

has been characterized by the presence of a predominant proportion of pneumococci of Types I and II during the period of our study.

2. Pneumonia of newly drafted colored men from Southern states. This has been of mild type, with a low rate of mortality and few complications. It has been associated during the period of our study with a high proportion of those types of pneumococci which occur in the mouths of healthy men. Pneumococci Type II have not been found; Type I has occurred in great part in one company of men. It is not improbable that the incidence of various types is dependent on exposure of susceptible men to those types which are disseminated when drafts have been recently assembled.

3. Pneumonia following influenza. In March an epidemic of influenza swept through Camp Funston and quickly spent itself, presumably by the infection of all susceptible men. In April there was a second wave of influenza and in May, a third, almost wholly limited to newly drafted men brought into the camp a short time before these outbreaks. Corresponding to each of these three outbreaks of influenza, there was a period of greatly increased incidence of pneumonia and bronchitis. These diseases, in many instances, were associated with influenza. They were prevalent in the organizations attacked by influenza, and maintained the same relation to the length of service of the men affected; that is, men who had been in the Army several months were attacked in the first outbreak, whereas the second and third outbreaks of pneumonia occurred in great part in newly drafted men. The pneumonia associated with influenza was in most instances lobar pneumonia, and was followed by a relatively low rate of mortality (from 14 to 20 per cent.). With the information available, it is not possible to draw a sharp line between (1) the pneumonia of the stable camp population, (2) the pneumonia of the newly drafted Southern troops, and (3) the pneumonia following influenza. It is possible that influenza, in a greater or less degree, also acts as a predisposing factor in the production of the first and second varieties.

4. Pneumonia with measles. In November and December, 1917, there was an outbreak of pneumonia accompanying measles. The disease was predominantly bronchopneumonia, and the rate of mortality was very high (45 per cent.).

Examination of the mouths of healthy men in the camp for pneumococci has shown types usually present in the mouth, namely, Atypical Type II and Types III and IV in 61.2 per cent. of those examined. Pneumococcus Type I has been found only twice—once in a company in which four cases of Type I pneumonia had occurred, and once in a man who a short time before the examination had been in the hospital with otitis media and tonsillitis.

During the period of our investigation, hemolytic streptococci had an insignificant part in the production of pneumonia and its complications. There have been 112 cases of measles, but no complications referable to hemolytic streptococci. Hemolytic streptococci have been found in the mouths of one in four or five healthy men in Camp Funston. Evidence obtained has suggested that hemolytic streptococci may disappear from the mouths of patients with the onset of measles; few carriers were found during the period of the rash, but later the incidence of hemolytic streptococci gradually increased, and finally reached that of healthy men in their own organizations.

Bacillus influenzae has been found in the mouths of 35.1 per cent. of the healthy men examined at Camp Funston. It has been found associated with pneumococci in eight of sixty-two cases of pneumonia. We have had no opportunity to study the bacteriology of influenza.

A small group of cases of bronchitis have been studied. In all that have been examined by appropriate methods, pneumococci Type IV or Atypical Type II have been found. Of thirteen cases, all but two harbored either *Streptococcus hemolyticus* (four instances) or *Bacillus influenzae* (seven instances).

Clinical Notes, Suggestions, and New Instruments

IODIN CONSERVATION: CAMP LEWIS METHOD

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Major, M. C., U. S. Army
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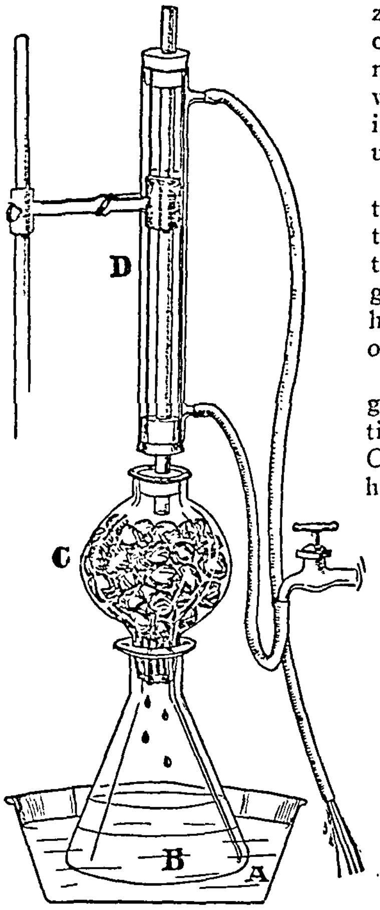
Tincture of iodin has by reason of its convenience and efficiency largely superseded other antiseptics for skin sterilization preparatory to surgical operations. The ordinary method is to paint the skin with a small gauze mop held in forceps. These mops are usually thrown away.

Long ago it occurred to me that the waste was greater than the use, and the saving of the mops was begun. The greatly increased cost of iodin has lately emphasized the need of conservation.

In collaboration with Sergeant Brown under the direction of Major Staniford in the Camp Lewis laboratory, we have worked out a practical method of conservation which we have now been using for several months.

The iodin mops are dropped into a conveniently placed dish in the surgery and are then saved in large glass jars. When they have accumulated in a sufficient quantity they are taken to the laboratory and the iodin is recovered in the form of tincture by repercolation with condensed alcohol vapor. The apparatus here illustrated is simple and may be obtained from any large dealer in chemical glassware.



Apparatus for recovering iodin from iodin mops: *A*, water bath; *B*, alcohol; *C*, iodin mops; *D*, condenser.

As the boiling point of alcohol is below that of water, it is only necessary to heat the water bath until the alcohol boils. The iodin does not volatilize from the liquid. A piece of moist starch paper placed at the open end of the condensation tube is not discolored. The condensed alcohol vapor drops back through the mops and carries the iodin with it in the form of tincture. It may be readily standardized by the color test, a convenient standard being a 1 dram vial filled with the desired percentage of the tincture. When desired, the residual dilution in the mops may be readily "squeezed" out by applying a cold, wet cloth to the upper portion of the alcohol flask. This may be done at the conclusion of the percolation, when the mops are white. They are then washed, resterilized and used again.

It is believed that the total waste of iodin in both military and civil hospitals enormously exceeds that which is actually utilized. It is suggested that groups of hospitals cooperate in the saving of their iodin mops and in the reclamation of both the iodin and the gauze.

At Camp Lewis we have requested civil hospitals in Tacoma, Portland and Seattle to aid us in demonstrating the utility of the plan by sending their mops to the base hospital laboratory.

REPORT OF A CASE OF EXTREME DISPLACEMENT OF THE VERMIFORM APPENDIX

George F. Straub, M.D., and G. C. Milnor, M.D., Honolulu, H. I.

The rarity of an extreme displacement of the appendix leads us to report this case, believing that it may be of interest and value to the profession.

REPORT OF CASE

History.—H. C., American laborer, aged 38, gave the history of having had indigestion and obstinate constipation for five years. During this period he also had felt nearly constant but mild pain in the right abdomen above McBurney's point. He had never had a typical attack of appendicitis, but said that often during his work and at night, a sudden sharp pulling pain would occur, always located about 2 inches above McBurney's point and radiating upward to the ensiform cartilage, where it would center for ten or fifteen minutes. He had lost 45 pounds in weight in five years and had been treated for various stomach disorders. Otherwise his history was negative.

April 15, 1918, the pain described above was so severe as to force him again to consult a physician. There was no fever. The pulse was normal. There was no vomiting and only slight tenderness a little above McBurney's point without any rigidity. The leukocyte count was 9,800. A diagnosis of chronic appendicitis was made and an operation advised.

Operation.—April 16, 1918, the patient was operated on at the Queen's Hospital, Honolulu. A McBurney incision was made, and after thirty minutes of careful searching the appendix was located. The cecum was found to be drawn upward about 3 inches out of position, while the transverse colon formed a rather long loop hanging down below the umbilicus, without omentum. It was this loop constantly appearing in the wound that led us astray in exactly locating the appendix. The base of the appendix was finally found 3½ inches above McBurney's point, not postcecal, but anterior and adherent to some organ above, pulling the cecum upward and dragging the ileocecal junction with it.

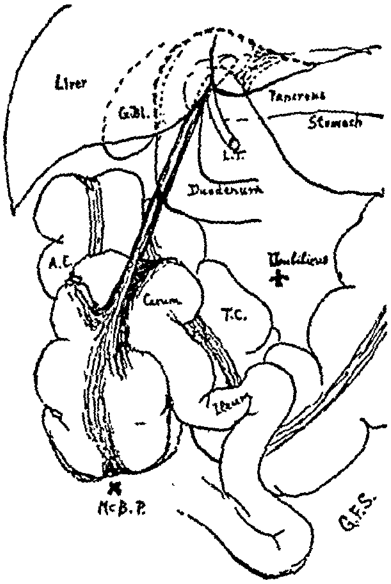
The accompanying illustration shows how the appendix in its course crossed part of the ascending colon, constricting it and also the beginning of the transverse colon, and then crossing the duodenum under the gallbladder passed underneath the pylorus ending on and adherent to the head of the pancreas.

As it was impossible to do anything more than locate the base of the appendix through the first opening, a high right rectus incision was made through which the tip was secured and freed from the underlying structures, a most difficult task, as the adhesions were very firm and numerous. Once loosened, the tip was brought out of the McBurney incision. The cecum then was able to occupy its normal position. From this point the appendix was tied off, amputated and the stump buried by purse-string. The appendix was 6 inches long, of normal thickness, and aside from two strictures (one of them near the tip) and a moderate degree of chronic congestion, did not present any abnormalities. There was no mesenteriolum.

The patient made an uneventful recovery and is now feeling perfectly well. He is free from pain. The indigestion and constipation have left him, and he is gaining weight right along.

PATHOLOGY

The pathology of this condition is most interesting. The appendix and cecum belong in the right lower quadrant of the abdomen. Any position outside of this location is to be classified as a displacement of the ileocecal apparatus. One group of such displacements may be caused by a long mesentery, a free and movable mesocolon, which is most frequently the case. We may call them floating ileocecum. The appendix may then be found in any location of the abdomen, occasionally in hernias, etc. The other group of cases have their foundation in arrested fetal development. Following up the embryonic genesis of the large intestine we see the primitive intestinal loop differentiate into the small and large intestine, and the beginning of the large intestine, the ileocecum, mainly due to the influence of the much faster growing small intestine, rotate over and around the latter, which process makes the ileocecal apparatus take a route over the spleen and stomach (eight weeks), duodenum (nine weeks), below the liver into the right hypochondrium (ten weeks) and from then on down toward its final and normal position (from the fourth to the seventh month). Kelly says that "the cecum may never reach the iliac fossa, if during its descent the ileocecal apparatus or any portion of it becomes adherent to neighboring organs, such as the kidney, the gallbladder or the duodenum." Consequently the fixation of the ileocecal apparatus may occur at any point while on its course during the embryonic rotation of the primary intestinal loop. According to statistics, the proportion of the undescended ceca in the male and female is about 2:1. It is also a fact that appendixes in such cases tend to retain the fetal type, that is, do not show the sharply defined border between cecum and appendix, although this was not the case in our observation.



Position of appendix, the tip of which was adherent to the pancreas, thus pulling the cecum upward.

If in the light of such knowledge we try to explain the pathology of our case, we must come to the conclusion that we have to deal with a displacement of the appendix, due to arrested fetal development, probably around the eighth week of embryonic life. From a clinical standpoint the symptoms were rather characteristic and interesting as compared with the operative findings.

401 South Beretania Street.

Surgical Instrument Manufacture in the United States.—The *Scientific American* summarizes from a recent report of the United States Tariff Commission information concerning the condition of surgical instrument manufacture in this country and shows our dependence on foreign instrument makers prior to 1914. In the latter year the value of all surgical instruments produced in the United States was $1,400,000, while the importations of steel instruments were valued at $1,500,000, about 95 per cent. of which came from Germany. It will be a surprise even to surgeons to know the great number of different instruments supplied. For instance, one of the largest importing houses offers to supply any one of 10,000 items, and well stocked retail dealers will carry from 6,000 to 7,500 different types. Heretofore the manufacture of surgical instruments involved a great variety of skilled hand labor. Since the beginning of the war standardized types of instruments have been produced in this country by machinery in place of hand work.

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SATURDAY, JANUARY 11, 1919

THE FUNCTIONS OF THE DUODENUM

The not infrequent necessity of surgical interference with the integrity of the alimentary tract inevitably raises the question as to the importance of such physiologic functions as may thereby be involved. In the case of the stomach there is now general accord with the view that this organ is not indispensable to life. Complete excisions have been made not only in experimental animals, but also in the human patient, without untoward results other than those necessitating a careful selection of diet because of the absence of preparatory digestive and bactericidal processes at the beginning of digestion. Surgical experience has demonstrated that varying lengths of the small intestine in the region of the jejunum and ileum can be removed without serious inconvenience. At most the ill effects of extensive resections of this portion of the intestine are represented by nutritional disturbances, the expression of incomplete digestion of an unsuitable diet. Truly systemic disorder is not a direct sequel to extirpations of this sort.

The removal of the duodenum presents far greater difficulties than those offered by the lower portions of the bowel. The intimate association of the pancreas with the duodenum, and the natural drainage of the stomach, the pancreatic and biliary ducts into this structure make the surgical problem more serious. But further than this there is the question as to the physiologic importance of the duodenum in whole or in part in relation to the maintenance of life. In other words, is the duodenum, aside from its digestive performances, necessary for life? On this highly important question the available evidence is most confusing. The long debated contention of the physiologist Pflüger that loss of the duodenum is certain to result in severe diabetes has been effectually disposed of as untenable by the consensus of competent experimenters. Nevertheless at least one American physiologist has maintained that the duodenum is as necessary to life as are the suprarenals or parathyroid structures, the implication being that it furnishes an indispensable hormone. To some degree the problem of duodenal function is involved in the controversies respecting the alleged toxemias of intestinal obstruction that have repeatedly been discussed in The Journal.[1]

The latest contribution on the subject, an experimental study at the State University of Iowa,[2] is somewhat reassuring, as the results are of a positive rather than a negative character. The report states that animals can survive indefinitely a complete extirpation of the combined jejunum and ileum. A dog was kept three months after a complete removal of the pyloric part of the stomach, the entire duodenum and the upper jejunum. Therefore the mucosa of this region of the digestive tract is not comparable to the suprarenals or parathyroids in function. Furthermore, the Iowa physiologists affirm, as the outcome of their observations, that the normal secretions of the duodenum and jejunum are not toxic. When bacteria are excluded from the lumen of the intestine, various pathologic changes, even to complete occlusion of the blood supply to an isolated piece of intestine with resulting autolysis and reabsorption, can take place without the elaboration of sufficient toxic substances in the cells themselves or in their secretions to kill the animal. The logic of the situation leads to the conclusion that the duodenum does not excrete in the duodenal juice any substance necessary for life or for the function of the intestine lower down. In other words, there is no evidence that the duodenal juice contains anything vitally necessary to the organism.

THE NATURE OF AUTOLYSIS

The softening or liquefaction of dead tissues without the intervention of bacterial putrefactive processes has long been recognized as a biologic possibility. In 1890, Salkowski announced that this postmortem self-digestion, or "autodigestion," as he termed it, is due to enzymatic changes of the sort subsequently designated as intracellular. The expression "autolysis" now in vogue to designate the same phenomena was introduced in 1900 by Jacoby. Since then it has gained increasing prominence in relation to various problems of chemical pathology. The importance assigned to the subject is indicated by the fact that some investigators have even regarded postmortem autolysis as a continuation of a normal intravital process; hence it was believed that a thorough understanding of the mechanism of autolysis might give a clue to the phenomena of protein changes in the living cell. As one writer[3] has expressed it, "It may be assumed with certainty that no one would have devoted so much effort and care to these rather bothersome subjects if it were not for the impression that just here there is a chance to remove one part of the intermediary metabolism from the dark interior of the living economy into the transparency of the test tube."

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[1] The Consequences of Intestinal Obstruction, editorial, J. A. M. A. 61: 1988 (Nov. 29) 1913; Intestinal Obstruction, 63: 1299 (Oct. 10) 1914; Newer Knowledge Regarding Intestinal Obstruction, 64: 1914 (June 5) 1915; The Blood in Intestinal Obstruction, 67: 364 (July 29) 1916; The Toxemia of Intestinal Obstruction, 68: 914 (March 24) 1917.

[2] Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: Extirpation of the Duodenum, Am. J. Physiol. 46: 584, 1918.

[3] Von Fürth, O.: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, J. B. Lippincott Company, 1916, p. 78.

The difficulty of reconciling the supposed behavior of the postulated autolysis enzymes of the various tissues, practically all of which have been shown to be capable of "self-digestion" or autolysis, with the manifestations of the familiar proteolytic digestive ferments has been considerable. Wells[4] concludes that the intracellular proteases assumed to be specifically responsible for autolysis are not altogether like either pepsin or trypsin; for they split proteins into the simplest compounds, whereas pepsin carries the digestion only to the peptone stage under ordinary conditions, and unlike trypsin their action is most marked in a faintly acid medium. To explain why agencies so potent for cell disintegration after death do not produce comparably profound dissolution of the tissues during life, various hypotheses have been advanced. The existence of specific antienzymes in the living cells as means of defense has been assumed. Again it has been suggested that the autolyzing enzymes are present only in the form of precursors or pro-enzymes which gain effectiveness under postmortem conditions. All recent workers have recognized the significance of the reaction of the medium in which the autolytic materials are present. In some cases the favorable acid, for example, has been believed to render the protein substrate more susceptible to digestion. In others the question of reaction has been interpreted solely with relation to the enzymes themselves. Despite all this confusion, volumes have been written on the presumable significance of autolysis in the disappearance of degenerated tissues, the softening of infarcts, the resolution of exudates, and related manifestations.

Recent studies of Dernby[5] at the Rockefeller Institute for Medical Research, New York, promise to clear up some of the obscurity surrounding the subject of autolytic enzymes. From this exceptionally well conducted investigation it seems likely that most, if not all, of the tissues—liver, spleen, pancreas, gastric mucosa and leukocytes were specifically investigated—contain proteolytic enzymes of the pepsin type and likewise of the trypsin or erepsin type. The latter demand a hydrogen ion concentration that is on the alkaline side, and have their action checked in a slightly acid solution. The pepsin-like enzymes, on the other hand, cannot act in alkaline or even neutral solution. According to Dernby, both types of proteolytic enzymes occur in all the tissues studied. In some of them, however, one or the other of the enzymes has been predominant over the others, as the pepsin in the stomach and the trypsin in the pancreas. Unlike the less specialized enzymes, pancreatic trypsin and gastric pepsin can easily be extracted from the cells.

Autolysis of tissues proceeds most rapidly and completely when the two types of enzymes can work simultaneously. This is in slightly acid solution. The optimal reaction lies between that for pepsin and for trypsin, respectively. Considering that there are enzymes in the tissues of both peptic and tryptic nature, says Dernby, and considering also the hydrogen ion concentration of the medium and its eventual changes, most of the autolytic reactions can be explained without assumption of hypothetic agents, such as "pro-enzymes," "activators" or "antienzymes." The significance of seemingly insignificant changes in reaction for the progress of many physiologic phenomena needs to be appreciated more than it has been. The modern study of hydrogen ion concentration in relation to biologic responses has brought to light many astounding and unexpected facts, among which these observations on tissue enzymes and their activities may now be classed.

"ASPIRIN"—A COMMON NAME

"Aspirin" as a trade-mark will no longer exist if the recommendation of the Examiner of Interferences of the United States Patent Office is upheld, as it probably would be, should the matter be taken to the courts. The opinion of the Patent Office was the result of a petition by the United Drug Company in the case of that company against the Bayer Company, or, as it was called at the time the suit was brought, the Farbenfabriken of Elberfeld Company. The stand taken by the Patent Office is directly in line with that that has been held in this and other cases by THE JOURNAL, which has for years insisted that it was against public policy to permit patentees to extend the seventeen-year monopoly, which the patent laws grant, to a perpetual monopoly by the simple device of obtaining a trademark for the name of the thing patented. It is a fundamental principle in law that "no one can have a monopoly in the name of anything." This of course has been recognized and admitted even by those manufacturers who have attempted to invoke the trade-mark laws to obtain an unwarranted advantage.

The manufacturers of aspirin have held that the chemical name "monoaceticacidester of salicylic acid" was the true name of the patented article, and was the *only* name which became public property when the patent right expired. The Patent Office points out, however, that for years the only name that the public ever saw on the brand of monoaceticacidester of salicylic acid made by the holders of the patent on this product was "Aspirin." The Examiner of Interferences in this decision points out that, previous to 1915, the Bayer Company sold no tablets to the retail-purchasing public, but marketed its product as a powder; further, that it did sell vast quantities of the powder to tablet-makers, who sold "Aspirin Tablets," and that the consuming public knew the product only by the name "Aspirin." This name, then, had a significance to the purchaser, similar to that of the word "quinin" on a package of quinin tablets, or the word "calomel" on a package of calomel tablets. As the Patent Office says: "In other words, the *prima facie* significance of this word 'Aspirin' to such purchasers was that of a name"—and as a name it is "necessarily incapable of exclusive use by any one."

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[4] Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1918, p. 84.

[5] Dernby, K. G.: A Study on Autolysis of Animal Tissues, J. Biol. Chem. 35: 179, 1918.

The Patent Office's decision also brings out the fact that, until the owners of the aspirin patent commenced making tablets themselves, the aspirin tablets on the market were not uniform, and that this lack of uniformity was a fraud on the public which the owners of e aspirin patent should have prevented. The concern did prevent it when it began to make the tablets itself, but maintained in its contention against the United Drug Company that it was unable to control the matter previously—a contention to which the Patent Office gives short shrift. It is further pointed out that the Bayer Company evidently recognized the weakness of its contention by the emphasis it placed through its advertising on the "Bayer Cross."

When the Bayer Company began manufacturing its own aspirin tablets, it made a pretense of complying with the letter of the law, while violating its spirit, by placing on the label under the word "Aspirin," the statement that "the monoaceticacidester of salicylic acid in these tablets is the reliable Bayer manufacture. Says the Patent Office: "With regard to the expression 'monoaceticacidester of salicylic acid,' a mere inspection of it is sufficient to apprise any one of its inherent unsuitability for use as a name by the lay purchasing public." This attempt on the part of the company to "beat the devil around a stump" tended, in the opinion of the Patent Office decision, "to show that the respondent was familiar with the methods of some modern traders to meet the trend of the law." And, discussing such methods, the Examiner of Interferences says: "A very popular one is for a trader to seemingly bend to the necessity of the situation by placing on the label a notation which in theory, but not in practice, may be used by the public to identify the article after the monopoly has expired. To the examiner this practice seems to be merely a manifestation of that keen commercial instinct which endeavors to keep just ahead of the law. This instinct is fairly common in traders, and is clearly disclosed in trade-mark infringement cases."

Summed up, the decision is to the effect that, as in any case prior to 1915, the public had been driven to look on the word "Aspirin" as the name of a *thing*, and as the Bayer Company had not used the word as a "trade-mark" within the meaning of the law, the Patent Office recommends that the registration of "Aspirin" as a trade-mark be canceled. If no appeal is taken from this decision, or in case an appeal is taken, should the opinion be sustained, the attempt on the part of the patentees of aspirin to get a perpetual monopoly on their product through the trade-mark laws will have been definitely defeated.

THE MECHANISM OF EXPERIMENTAL PITUITARY DIURESIS

The investigation of the functions of the pituitary body, or hypophysis, and likewise the possibilities of the use of the gland in organotherapy have been complicated by the now recognized fact that the anterior and the posterior or infundibular portions exert unlike effects. The therapeutic applications have been restricted thus far to the study of the posterior lobe, with which is included the pars intermedia. Schäfer demonstrated several years ago that extracts of this produce a rise of blood pressure and diuresis. The intelligent employment of diuretics will depend, when therapy becomes rationalized, on a correct understanding of the mechanism by which each drug acts. In the case of the kidney the possibilities are at least twofold. Substances may provoke an increased production of urine by altering the blood flow through the renal vessels. These dilate, while the blood vessels elsewhere are more or less constricted, and a diuretic effect ensues. Or, the renal cells may be stimulated directly by the substance investigated. In this way urea and caffein act as diuretics.

How uncertain the mode of action of pituitary extract as a diuretic appears is indicated by the conclusions of Hatcher and Wilbert[1] in "The Pharmacology of Useful Drugs," wherein it is stated that:

> The renal vessels dilate while the splanchnic vessels constrict, and this effect has been invoked to explain the well-known diuretic action of pituitary, but there is no reason to doubt that it also acts directly on the renal cells causing an increased secretion, both actions probably being concerned in the diuresis.

True cellular activity means metabolism, which assumes a need of oxygen. "There is no instance in which it can be proved that an organ increases its activity under physiological conditions without increasing its demand for oxygen." If pituitary extracts actually provoke an increased activity of the renal tissue, the kidneys will show an augmented consumption of oxygen. In the latest experimental studies by Knowlton and Silverman[2] at the Syracuse University College of Medicine, the oxygen consumption was used as a criterion without obtaining any evidence that pituitary extract stimulates the kidney cells. On the other hand, increased blood flow through the kidney was an invariable accompaniment of pituitary diuresis. Hence Knowlton and Silverman conclude that from the evidence at hand it seems possible to explain the diuretic action of pituitary extract entirely on the basis of the vascular changes and increased filtration pressure obtaining in the kidney. Such vascular effects would be in harmony with the other more familiar actions of extracts of the posterior lobe on involuntary muscle.

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[1] Hatcher, R. A., and Wilbert, M. I.: The Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 197.

[2] Knowlton, F. P., and *Silverman*, A. C.: The Action of Pituitary Extract on the Kidney, Am. J. Physiol. 47: 1, 1918.

Current Comment

ANNUAL REPORT OF THE PUBLIC HEALTH SERVICE

The annual report of the Public Health Service covering the fiscal year ending June 30, 1918, is interesting and unique in showing the relation of the Public Health Service to the military and naval departments in time of war. The year 1918 was marked by two important pieces of legislation relative to the Public Health Service: first, an executive order, issued July 1, placing all civil public health activities carried on by any federal executive department or agencies especially created for or concerned in the prosecution of the war, in the charge of this department, and second, the passing, October 27, of an act to establish in the Public Health Service a sanitary research corps. During the year the service carried out all of its usual work; controlled the sanitation of extracantonment zones; gave attention to industrial hygiene and the care of munitions plants and other factories making war materials; controlled the manufacture of biologic products, and, in cooperation with the Federal Trade Commission, assumed supervision over the manufacture of arsphenamin. All of this work is described in detail in the report. Sections are devoted to domestic and interstate quarantine; to extracantonment zone sanitation; to maritime quarantine; to sanitary reports and statistics and to maritime hospitals and relief. In that portion of the report concerning personnel and accounts, it is indicated that thirteen officers have been continuously detailed to the Navy during the war and that two officers are now on duty with the Army. Aid has also been extended to the bureaus of War Risk Insurance, the Emergency War Risk Corporation and the Federal Board for Vocational Education. At the close of the year the commissioned officers of the Medical Corps of the Public Health Service consisted of the Surgeon-General, one assistant surgeon-general, sixteen senior surgeons, seventy surgeons, sixty-one passed assistant surgeons and sixty-three assistant surgeons. The section devoted to publications shows that a great many reports have been published during the year covering many phases of research and investigation. In a final section on the needs of the service, Surgeon-General Blue urges the completion of the national quarantine system by acquiring the Baltimore and New York quarantine functions. It is also recommended that the national quarantine stations at the ports of Norfolk, Mobile, New Orleans and San Francisco be relocated as soon as possible. These stations are at present almost inaccessible to the cities that they represent. Additional funds are asked for the continuation and expansion of rural sanitation studies and for studies of industrial workers and plants and for research on diseases of unknown etiology. It is recommended that the relief work of the service be extended to include the care and treatment of civil employees when ill, and also that hospital accommodation be supplied for the treatment of discharged soldiers and seamen. The need of still further bettering methods of securing statistics is emphasized and, finally, additional appropriations are asked so that service literature may have wider distribution. The report of the Surgeon-General of the Public Health Service is a more personal report than that of either the Surgeon-General of the Army or of the Navy, since the names of officers engaged in various duties are given as well as the stations that they have occupied.

THE PHYSICIAN AND THE INCOME TAX

The present federal income tax law, however unpopular it may be, bids fair to improve the business methods of physicians, and to throw a light on the question of the doctor's income. It is too common for a physician to regard his cash receipts as his income. A physician when asked how he is getting along will say, "I took in $6,000 last year," or "I did $10,000 worth of business." Practices are advertised for sale on the same basis. Yet this is not the true income any more than are the gross receipts of a grocer or a dry-goods merchant. Any business man who regarded his total cash intake for the year as his income would be considered by his business associates as headed for the bankruptcy court or the lunatic asylum. The business man knows that out of his gross receipts must come his operating expenses, insurance, depreciation, replacement of stock, and interest on investment before he can even begin to estimate his profit for his year's work. Yet prior to the passage of the present law, the great majority of physicians would have been unable to estimate their income on any other basis. Few physicians, except city specialists with offices separate from their homes, have been in the habit of separating their business from their family and personal expenses. The income tax law has made it not only necessary, but also highly profitable for us to keep books more carefully than we have heretofore done, since exemption is allowed for all *legitimate* professional operating expenses. This calls for definite figures as to the amount spent for office rent, attendants and maintenance, drugs and surgical dressings, maintenance of automobile or other conveyance, medical periodicals, associations and meetings, etc. In a word, it requires us to estimate the cost of carrying on our business, and the difference between this and the gross receipts. Many physicians who have heretofore been entirely ignorant of what their business was costing them have been surprised to learn that their real professional income was one-third or one-fourth what they had supposed. The income tax, in its present form at least, is a war measure, and few, if any, will regret its disappearance or material *modification*; yet if during the time that it is in force we learn to keep systematic records of receipts and expenditures, it will have taught a most important lesson.

A REMARKABLE LETTER

At a recent meeting of the New Jersey Sanitary Association, the retiring president, Mr. G. W. Fuller of New York, read a letter addressed to him in January, 1892, by the eminent German sanitary engineer, C. Piefke, whose name is especially familiar to all those interested in the sand filtration of water supplies. Part of the letter as presented by Mr. Fuller[1] is as follows:

> Here in Germany, conditions have changed to be very uncomfortable. Militarism and bureaucracy are spreading over our very existence, and despite all effort, no success rewards him who does not occupy a high rank within this hierarchy. Then comes the unfortunate passion for titles among Germans in general, so that an individual is not esteemed according to his personal worth, but his social position. . . . America is today the only civilized country where no restraint is placed on the pleasure of working, either through antiquated regulations or through the rights of privileged classes.

Mr. Fuller goes on to say:

> The latter years of Piefke's life were spent very unhappily—deprived of his water-works position in Berlin and assigned practically to be a recorder of ground water statistics for the Berlin district.

The picture presented in Piefke's letter of German professional life twenty-five years before the war is a significant one. It is especially interesting in the light of what has happened during the last four and a half years.

GASTRIC SECRETION AND AMMONIA EXCRETION

It is more than forty years since Walter[2] demonstrated that the ammonia output in the urine can be increased or decreased by the ingestion of acids or alkalis, respectively. Recently we concluded[3] that there is no reason today for believing otherwise than that the sole function of the ammonia found in the urine lies in the neutralization of acids arising in the normal metabolic processes, assuming, of course, that acid is not fed as such. An interesting illustration of the phenomenon of ammonia production and excretion in relation to the gastric secretion of hydrochloric acid has just been pointed out by Ivy[4] in the Hull Physiological Laboratory of the University of Chicago. He has found that during gastric stimulation by food and by water, followed by absorption in the intestine, there is an increase in urinary ammonia. The degree of increase depends on the rate of absorption of the acid chyme. It is not enough that hydrochloric acid shall be secreted. Unless there is a subsequent absorption in the intestine, no alteration in the ammonia factor ensues. The ammonia excretion depends on the balance of acids and bases in the body. One might expect that when acid is abstracted from the blood for gastric secretion the blood would become alkaline; but it must be recalled that alkali is secreted in turn in the formation of pancreatic juice. If the acid is returned by absorption more rapidly than it can be neutralized by the intestinal alkali, it will be neutralized by the ammonia in order that the hydrogen-ion equilibrium may be maintained without drawing on the alkali reserve of the plasma, the importance of which we have frequently discussed.[5]

ANNUAL REGISTRATION OF PHYSICIANS, AND A DANGER

Much interest has been aroused recently in the plan to require an annual registration of physicians[6] which involves the annual renewal of the license and the payment of a nominal registration fee. The arguments advanced for this plan are sound and reasonable. Without such registration a physician presents his credentials, passes his examination, secures his license and begins to practice. Thereafter the licensing board has no authoritative means of securing information from him. He may remain in a single locality and continue as a reputable practitioner of medicine—and if this were always the case there would be no need of an annual registration. But he may move from one place to another in the same state, or he may secure licenses in several states and practice as an "itinerant quack," and the fact be unknown to any of the boards. Again, the physician may die, and it may even occur that one not educated in medicine will secure his diploma and practice under the name of the deceased physician, and the board have no direct means of discovering it. Several such instances have actually occurred. Under a law providing for an annual registration, properly administered, the state board would have reliable information regarding all of these irregularities. The board's records could be more accurate, since each practitioner would be required not only to state where he was practicing, but also to prove his identity by furnishing an affidavit containing other required data. Investigation of failures to send information would usually disclose deaths or removals, and the efforts to furnish identification would frequently, if not invariably, call attention to fraudulent practitioners. There is, however, a danger connected with the plan for an annual registration of physicians, and that is the possibility of a misuse of the additional funds in those states in which the boards divide among their members any surplus remaining at the end of the year. This should be avoided.

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[1] Engin. News-Rec., p. 1121 (Dec. 19), 1918.

[2] Walter: Arch. exper. Path. u. Pharmakol., **7**: 148, 1877.

[3] The Significance of Urinary Ammonia, *editorial*, J. A. M. A. **71**: 1140 (Oct. 5) 1918.

[4] Ivy, A. C.: Contributions to the Physiology of the Stomach, XLVII, Gastric Secretion and Urine Ammonia, Am. J. Physiol. **46**: 340, 1918.

[5] Blood Alkalinity During Digestion, Current Comment, J. A. M. A. **65**: 806 (Aug. 28) 1915; The Regulation of the Circulation, editorial, **65**: 959 (Sept. 11) 1915; Alveolar Air and Acidosis, **66**: 896 (March 18) 1916; The Alkali Reserve of the Blood, **67**: 882 (Sept. 16) 1916; The Estimation of Acidosis Under Clinical Conditions, **68**: 1327 (May 5) 1917; The Newer Conception of Acidosis, **69**: 646 (Aug. 25) 1917; Pulmonary Ventilation and the Carbon Dioxid of the Blood, **69**: 1789 (Nov. 24) 1917; Respiration and the Carbon Dioxid Capacity of the Blood, **70**: 924 (March 20) 1918.

[6] The states in which an annual registration of physicians is now required are California and (recently) Louisiana. Annual registration is commonly required in the provinces of Canada.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending Jan. 3, 1919, there were in the Medical Corps 28,222 officers, a decrease of 876 since the previous week. This personnel includes four major-generals, five brigadier-generals, 221 colonels, 2,449 majors, 9,209 captains and 15,814 lieutenants. There were in the active service 27,610, a decrease of 747 since the previous week. Discharges to date include 7,389 officers.

Medical Unit to Siberia

In connection with the announcement a few weeks ago of the formation of a medical unit for Siberia, we are informed that changed conditions have made it necessary to cancel the sending of this unit with the exception of five dentists, who are now en route.

Award for Bravery

Capt. James B. Clinton, M. C., U. S. Army, Philadelphia, assigned to duty with the British Expeditionary Forces in September, 1917, and with the 133d Field Ambulance, and was given the Military Cross on account of gallantry in action at Mount Kemmel, in May last, was awarded a bar to the Military Cross for gallantry in action, August 23.

Good Health of American Troops

An Associated Press dispatch from Chaumont, December 25, states that in the eight evacuation hospitals in the occupied area of the Third Army, there are only about 4,000 cases of illness, most of which are influenza. This amounts to less than 1.05 per cent. The Third Army has five hospitals in Coblenz, two at Treves and one at Mainz. Most of these were originally German hospitals, and have modern equipment.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

ALABAMA

Birmingham—Collins, T. (Lieut.)
Mobile—Cowles, T. D. (Lieut.)
  Gaines, M. T. (Capt.)
Thorsby—Woolley, C. M. (Lieut.)

ARIZONA

San Carlos—McDuffie, W. N. (Lieut.)

ARKANSAS

Fort Smith—Neal, J. H. (Lieut.)

CALIFORNIA

Beckwith—Decker, J. (Lieut.)
Coalinga—Hutchinson, C. W. (Lieut.)
Dos Palos—Johnson, B. W. (Lieut.)
Fresno—Nielsen, H. W. (Lieut.)
Hollister — O'Bannon, R. W. (Capt.)
Los Angeles—Brownfield, W. H. (Lieut.)
  Byrnes, R. L. (Major)
  Cook, E. J. (Capt.)
  Frank, M. A. (Lieut.)
  Hamilton, G. L. A. (Lieut.)
  McNaughton, J. A. (Capt.)
Napa—Abrons, H. (Lieut.)
Oakland—Parish, H. L. (Capt.)
San Diego—Barclay, H. A. (Capt.)
  Crabtree, E. H. (Lieut.)
San Francisco — Bullock R. R. (Capt.)
  Stevens, B. S. (Capt.)
San Pedro—Levin, H. (Lieut.)
Tipton—Hull, F. E. (Lieut.)

COLORADO

Denver—Foley, J. W. (Capt.)
Eagle—Wallace, P. B. (Lieut.)
Greeley—Church, W. F. (Capt.)
Walden—Fisher, C. H. (Capt.)
Wellington — Gleason, R. L. (Lieut.)

CONNECTICUT

Danbury—Gordon, W. F. (Capt.)
Hampton—Cocheu, L. F. (Capt.)
Hartford — Cogswell, E. S. (Lieut.)
New Haven — Falsey, E. T. (Lieut.)
Waterbury—Green, J. H. (Lieut.)

DISTRICT OF COLUMBIA

Washington — White, G. F. (Lieut.)

FLORIDA

Hawks Park—Forster, D. (Capt.)
Punta Gorda — McQueen, D. N. (Lieut.)
Tampa—Bird, U. S. (Lieut.)

GEORGIA

Chipley—Avery, R. M. (Lieut.)
Dalton—Steed, J. H. (Lieut.)
Manor—Thomas, W. R. (Lieut.)
Quitman—Mathews, W. (Capt.)

IDAHO

Fairfield—Higgs, D. P. (Capt.)
Moscow—Wiik, J. C. (Capt.)
New Plymouth — Drysdale, W. T. (Lieut.)

ILLINOIS

Bonfield—Yeates, W. (Capt.)
Carlinville — Westermeier, G. W. (Lieut.)
Cave-in-Rock — Oxford, S. E. (Lieut.)
Chicago — Bottolfson, B. T. (Lieut.)
  Casserly, E. A. (Lieut.)
  Conrey, G. A. (Lieut.)
  Folk, M. L. (Lieut.)
  Gregory, J. T. (Lieut.)
  Hoag, J. C. (Capt.)
  Hornsby, J. A. (Lieut.-Col.)
  Kenny, H. R. (Lieut.)
  Kubola, S. F. (Lieut.)
  Kucera, J. F. (Lieut.)
  Mendel, M. L. (Capt.)
  Miller, E. B. (Lieut.)
  Nicholson, R. M. (Capt.)
  Pritsker, L. J. (Capt.)
  Tigay, R. (Lieut.)
Columbia—Sondel, L. C. (Lieut.)
East Alton — McKinney, G. L. (Lieut.)
Galena—Smith, H. F. (Lieut.)
Harrisburg — Lehman, D. A. (Capt.)
Homer—Brayshaw, J. (Lieut.)
Joliet — McRoberts, W. A. (Lieut.)
La Rose—Eastman, J. A. (Lieut.)
Marshall — Mitchell, R. A. (Capt.)
Mattoon—Parrish, B. D. (Capt.)
Melrose Park — Scott, W. F. (Capt.)
Nashville — Rabenneck, P. B. (Lieut.)
Oak Park—Brown, F. L. (Lieut.)
  Spiering, A. K. (Lieut.)
Okawville—Jack, R. B. (Capt.)
Peoria—Floyd, T. W. (Capt.)
  Horwitz, S. (Capt.)
Rockford—Catlin, S. R. (Capt.)
Rushville — Fleming, C. M. (Lieut.)
Salem — Cunningham, H. A. (Lieut.)
Steward—Durin, J. M. (Lieut.)
Toulon—Berfield, C. (Lieut.)
West Frankfort — Bennett, C. E. (Lieut.)

INDIANA

Akron—Ferry, P. L. (Lieut.)
Anderson — Flemming, H. G. (Capt.)
Arcadia—Rodenbeck, F. (Capt.)
Brownstown — Cummings, D. J. (Capt.)
Elkhart—Hoover, E. M. (Capt.)
Frankford—Sickler, R. (Capt.)
Freedom—Hazel, J. T. (Capt.)
Hammond—Melton, O. O. (Lieut.)
Hartford City—Wise, W. (Lieut.)
Hope—Norton, J. W. (Capt.)
Huntington — Galbreath, R. S. (Lieut.)
Indianapolis —. Migennis, H. L. (Lieut.)
Kokomo—Adams, C. J. (Lieut.)
New Palestine — Mace, E. E. (Lieut.)
Peru—McDowell, M. A. (Lieut.)
Quincy—McQueen, W. (Lieut.)
Richmond—Gentle, L. M. (Capt.)
Rockport—Ehrman, C. D. (Capt.)
South Bend —Gordon, J. M. (Lieut.)
Tennyson — Spradley, L. G. (Lieut.)
Walton—Spohn, E. A. (Lieut.)

IOWA

Akron—Mattison, G., Jr. (Lieut.)
Bellevue—Dennison, J. C. (Capt.)
Grandview — McGrew, O. W. (Lieut.)
Lenox—Caldwell, J. S. (Lieut.)
Mason City — McDonald, J. E. (Capt.)
  O'Brien, S. A. (Capt.)
Rock Rapids — Boetel, G. H. (Lieut.)
Rolfe—Hollis, E. L. (Lieut.)
  Wilson, E. W. (Capt.)
Sheldon—Myers, J. W. (Lieut.)
Walnut — Robinson, R. E. (Lieut.)
Washington — Wickham, E. T. (Capt.)
What Cheer — Taylor, C. B. (Capt.)

KANSAS

Cambridge — Holland, D. A. (Lieut.)
Coffeyville—Flack, F. L. (Lieut.)
Corning—Maxson, J. C. (Capt.)
Kansas City—Asbell, E. L. (Capt.)
Norcatur—Knox, W. E. (Lieut.)
Salina—Simmons, J. W. (Capt.)
Smith Center — Morrison, H. (Capt.)
Yates Center — West, H. A. (Lieut.)

KENTUCKY

Danville—Cowan, J. R. (Capt.)
McQuady — Martin, W. W. (Lieut.)
Mortonsville — Hackley, J. M. (Capt.)
Paris—Brown, J. T. (Capt.)
Pleasant Ridge — Schultz, Z. H. (Lieut.)
Shelbyville—Beard, S. L. (Capt.)

LOUISIANA

Church Point — Jenkins, H. (Capt.)
New Orleans — Upton, G. H. (Lieut.)
Plaquemine—Holloway, E. (Capt.)

MAINE

Houlton—Walker, A. G. (Capt.)

MARYLAND

Aberdeen — Wilkinson, V. S. (Lieut.)
Baltimore—Eisenberg, A. (Lieut.)
  Nelson, J. T. (Lieut.)
Emmitsburg—Stone, D. E. (Lieut.)

MASSACHUSETTS

Boston—Bressler, C. W. (Lieut.)
  Parker, F., Jr. (Lieut.)
Framingham — St. Clair, A. E. (Lieut.)
Greenfield—Finch, E. B. (Capt.)
Lawrence—Allen, G. S. (Capt.)
Methuen—Ganley, A. J. (Lieut.)
New Bedford — Wilde, S. B. (Lieut.)
North Adams — Wright, C. W. (Lieut.)
Northampton — Kenney, T. H. (Lieut.)
Springfield — Galvin, A. H. (Lieut.)
Winter Hill — Caswell, B. H. (Capt.)

MICHIGAN

Detroit—Fisher, M. P. (Lieut.)
  Hamilton, J. T. S. (Capt.)
  Roberts, F. J. (Lieut.)
Flint—Marshall, W. H. (Major)
Menominee — McComb, E. V. (Capt)
Mount Clemens — Taylor, H. F. (Capt.)
Niles—Henderson, R. (Lieut.)
Oxford—Bachelor, J. W. (Capt.)
  Mackinnon, G. W. (Capt.)
Traverse City — Thirlby, E. L. (Capt.)

MINNESOTA

Crockston — Daniels, W. H. Lieut.)
Gully — Swedenberg, A. W. (Lieut.)
Lancaster — Dalquist, G. W. (Lieut.)
Lanesboro — Lommen, A. P. (Capt.)
Le Roy—Morse, M. P. (Lieut.)
Lewiston — Hendrickson, G. (Lieut.)
Minneapolis — Benjamin, A. E. (Capt.)
  Benn, F. G. (Lieut.)
  Gilroy, E. W. (Lieut.)
Minneota—Thordarson, T. (Capt.)
Rochester — Von Hess, C. L. (Lieut.)
St. Paul—Utley, J. D. (Capt.)

MISSISSIPPI

Indianola—Kent, H. C. (Capt.)
Itta Bena — Crisler, B. C. (Lieut.)
Minter City — Fleming, T. Y. (Lieut.)
Newton — Harrelsen, A. M. (Capt.)

MISSOURI

Charleston — Presnell, C. C. (Capt.)
Clinton—Beaty, J. G. (Capt.)
Excelsior Springs—Musgrave, J. E. (Capt.)
Hamilton—Eads, L. J. (Lieut.)
Joplin—Gregg, A. M. (Lieut.)
  Hurwitz, L. (Lieut.)
Kansas City — Miller, W. H. (Lieut.)
  Sams, W. M. (Lieut.)
  Zoglin, N. (Lieut.)
Lexington — Chalkley, A. J. (Capt.)
Marceline—Cater, R. M. (Lieut.)
New Hampton — Chipp, J. K. (Lieut.)
Parma—Blackman, C. S. (Capt.)
Pascola—Rosson, J. K. (Lieut.)
Salisbury—Morey, O. T. (Lieut.)
Springfield — Anderson, A. L. (Capt.)
St. Charles — Johnson, S. R: (Major)
St. Louis—Buhman, R. (Capt.)
  Clemens, J. R. (Major)
  Demenil, H. N. (Lieut.)
  Gettys, H. B. (Capt.)
  Gross, J. H. (Capt.)
  Hale, T. H. (Lieut.)
  Hanser, H. A. (Capt.)
  Harris, R. C. (Capt.)
  Mulach, A. A. (Lieut.)
  Potts, J. F. (Capt.)
Stockton — Emerson, B. H. (Lieut.)
Warrensburg — Harrison, A. W. (Lieut.)
Wheaton—McCall, O. S. (Capt.)

MONTANA

Cascade—Stratton, O. T. (Capt.)
Geraldine — Hulbush, W. A. (Lieut.)
North Great Falls—Chapman, G. L. (Capt.)

NEBRASKA

Aurora—Haughey, I. W. (Capt.)
Filley—Sweeney, E. E. (Lieut.)
Hartington — Dorsey, F. P. (Capt.)
Harvard—Ingram, J. E. (Lieut.)
Rosenbaum, H. A. (Lieut.)
Omaha—Kadavy, G. J. (Lieut.)
Wisner—Riley, L. (Capt.)

NEW HAMPSHIRE

Haverhill—Russell, F. C. (Lieut.)

NEW JERSEY

Dover—Farrow, J. W. (Capt.)
Keyport — Hartman, H. W. (Lieut.)
Morristown — Lawless, N. W. (Lieut.)
Trenton—Blaugrund, S. (Lieut.)
Vineland—Gray, C. M. (Capt.)
West Hoboken—Cimiotti, W. F. (Capt.)

NEW MEXICO

Albuquerque — Bakes, F. C. (Capt.)
Clarke, S. C. (Lieut.)
Twichell, D. C. (Capt.)
Lovington — Dearduff, A. A. (Lieut.)
Wagon Mound — Gibbs, H. W. (Lieut.)

NEW YORK

Albany — Haviland, H. C. (Lieut.)
Shaw, H. L. K. (Major)
Bellmore—Holcom, H. V. (Capt.)
Branchport — Costello, M. E. (Lieut.)
Brooklyn—Brown, B. P. (Lieut.)
Globus, J. R. (Lieut.)
Hargitt, C. A. (Lieut.)
Long, J. (Capt.)
Rappeport, J. A. (Lieut.)
Buffalo—Goldberg, M. H. (Lieut.)
Meisenbach, R. O. (Capt.)
Catskill—Jennings, D. W. (Lieut.)
Floral Park — Katzman, A. S. (Lieut.)
Herkimer—Murray, H. C. (Lieut.)
New York—Andres, L. N. (Lieut.)
Campbell, M. (Capt.)
Hertzberg, D. (Lieut.)
Jerome, W. Z. (Lieut.)
Jones, R. M. (Capt.)
Lacovara, A. (Lieut.)
Lederman, M. D. (Capt.)
Osserman, H. A. (Lieut.)
Polak, M. S. (Capt.)
Russell, J. I. (Major)
Splint, F. W. (Capt.)
Oswego—Halsey, W. M. (Capt.)
Sparkill — Knipe, J. B. (Lieut.)
Syracuse—Childs, D. S. (Capt.)
Charlotte—Durham, A. (Capt.)
Greenville—Ellen, C. J. (Capt.)
Ryland—Spencer, J. R. (Lieut.)

NORTH DAKOTA

Tuttle—Kerner, C. A. (Lieut.)

OHIO

Cleveland — Patterson, D. H. (Lieut.)
Woodworth, J. B. (Capt.)
Darrtown—Wilkie, A. B. (Lieut.)
Kenton—Snodgrass, F. B. (Lieut.)
Leetonia—Conrad, S. A. (Lieut.)
Mount Vernon — Blair, H. W. (Capt.)
Newark — Essington, U. K. (Capt.)
Orrville—Grady, O. G. (Lieut.)
Portsmouth—Tatje, O. D. (Lieut.)
Ravenna—Primm, H. (Capt.)
Rockford — Wickerham, J. O. (Lieut.)
St. Paris—Jenkins, W. I. (Lieut.)
Sugar Creek—Syler, A. H. (Lieut.)
Toledo—Gowing, W. A. (Capt.)
Sweeney, J. J. (Lieut.)
West Liberty — Croft, J. W. (Lieut.)
Youngstown — Higgs, W. E. (Lieut.)

OKLAHOMA

Britton—Gayman, S. E. (Lieut.)
Broken Bow — Sherrill, R. H. (Lieut.)
Davidson—Bacon, O. G. (Lieut.)
Elmer—McConnel, L. H. (Lieut.)
Humphrey—Lowe, J. T. (Lieut.)
Jenks—Harris, B. (Lieut.)
Magnum — Landrum, M. M. (Lieut.)
Mekuskey—Harber, J. N. (Lieut.)
Oklahoma City — Brake, C. A. (Lieut.)
Oklahoma City—Kelly, J. F. (Lieut.)
Phelan, J. R. (Capt.)
Stevens, J. W. (Lieut.)
Rush Springs—Evans, H. M. (Lieut.)
Sapulpa—Harris, B. C. (Lieut.)
Smith, L. (Lieut.)
Temple—Holsted, A. B. (Lieut.)
Tulsa—Wall, G. A. (Capt.)
Wayne—Dawson, O. O. (Lieut.)
Welch—Bradshaw, J. O. (Lieut.)
Wirt—Toler, T. M. (Lieut.)
Yale—Hudson, W. B. (Capt.)

OREGON

Hot Lake—Phy, W. T. (Capt.)
Kalamath Falls—Hamilton, R. R. (Major)
Portland—Johnston, W. (Capt.)
Menne, F. R. (Lieut.)

PENNSYLVANIA

Ardmore—Austin, J. H. (Major)
Beaver Meadows—Hunsicker, P. M. (Lieut.)
Bryn—Miller, G. H. (Lieut.)
Clearfield — Cowdrick, A. D. (Lieut.)
Johnstown — Widmann, B. P. (Lieut.)
Morea Colliery — Conahan, F. J. (Lieut.)
Philadelphia — Carson, J. B. (Major)
Fries, I. A. (Capt.)
Fulmer, C. L. (Capt.)
Hannum, W. (Capt.)
Hartwell, J. H. (Lieut.)
Kuehner, H. M. (Lieut.)
Lewis, F. O. (Capt.)
Peters, W. F. (Lieut.)
Stalberg, I. Z. (Lieut.)
Pittsburgh—Ashinsky, N. (Lieut.)
Soffel, A. (Lieut.)
Scranton—Parry, R. E. (Lieut.)
Steelton—Hursh, R. M. (Lieut.)
Washington — Thompson, A. E. (Capt.)

SOUTH CAROLINA

Branchville — Wimberly, J. S. (Lieut.)
Chester—Malone, H. B. (Capt.)
Clover—Campbell, J. W. (Lieut.)
Florence—Houston, C. E. (Lieut.)
Johnston—Stone, W. C. (Lieut.)
Manning—Geiger, C. B. (Lieut.)

SOUTH DAKOTA

Sioux Falls—Craig, D. W. (Lieut.)
Perkins, E. L. (Capt.)
Vermillion — Burkland, P. R. (Capt.)

TENNESSEE

Gardner — Edmonson, H. G. (Lieut.)
Knoxville—Young, F. L. (Capt.)
Leonia—Harris, L. C. (Lieut.)
Memphis—Moore, F. B. (Lieut.)
Moscow—Crook, C. N. (Lieut.)
Mount Pleasant — English, G. C. (Lieut.)
Sparta—Richards, A. F. (Capt.)
Tellico Plains — Niles, W. H. (Lieut.)
Townsend — DeLozier, B. E. (Lieut.)

TEXAS

Carbon—Gilbert, E. B. (Lieut.)
Dallas—Bettison, D. L. (Lieut.)
Ferguson, R. C. (Lieut.)
Delhart—Maxwell, E. L. (Lieut.)
Houston — Glover, F. S., Jr. (Lieut.)
Huntsville — Baylis, H. E. (Lieut.)
Kauntze—Hart, F. B. (Lieut.)
Lipan—Axtell, E. C. (Lieut.)
Meridian—Knight, J. B. (Lieut.)
San Angelo—Horney, H. (Capt.)
San Antonio — Wolf, W. M. (Major).
Sherman — Ridings, A. L. (Capt.)
Temple—Hancok, E. C. (Lieut.)
Terrell—Jarmon, T. M. (Lieut.)

UTAH

Huntington — Nixon, J. W. (Lieut.)
Ogden—Brown, R. M. (Lieut.)
Standardville — Estes, F. E. (Capt.)

VERMONT

Cambridge — Newton, G. H. (Capt.)
Randolph—Gifford, J. P. (Capt.)

VIRGINIA

Clinchport—Nickels, S. B. (Lieut.)
Gate City—Corns, E. M. (Lieut.)
Suffolk—Rawls, D. L. (Lieut.)
Winchester—Boyd, P. W. (Capt.)

WASHINGTON

Endicott—Henry, B. D. (Capt.)
Seattle—Beckett, E. E. (Capt.)
Lee, E. C. (Capt.)

WEST VIRGINIA

Alderson—Mahood, C. F. (Lieut.)
Bluefield—Kirk, J. B. (Capt.)
Fairmount — Fleming, C. S. (Lieut.)
Farmington — Vaughan, C. M. (Lieut.)
Gandesville—Camp, W. C. (Lieut.)
Glen Easton—Crow, W. F. (Capt.)
Milton—Morrison, L. C. (Capt.)

WISCONSIN

Antigo—Murphey, E. R. (Lieut.)
Arcadia—Palmer, J. A. (Capt.)
Baraboo—Sayles, L. W. (Capt.)
Eau Claire — Mason, E. L. (Capt.)
Janesville — Nuzum, T. W. (Lieut.)
La Crosse — Edwards, W. A. (Lieut.)
Milwaukee—Hall, R. M. (Lieut.)
Wenn, J. F. (Capt.)
New London—Armstrong, G. E. (Lieut.)
Oconomowoc — Loughnan, A. J. (Lieut.)
Racine—Brazeau, G. N. (Capt.)
Rice Lake—Knapp, E. J. (Lieut.)
Sullivan—Majerus, P. J. (Lieut.)

WYOMING

Lusk—Hassed, W. H. (Lieut.)
Sheridan—Selby, G. M. (Capt.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Gordon, Ga., from Fort McPherson, Capt. C. M. RUDOLPH, Birmingham.

To Fort McHenry, Md., from Camp Joseph E. Johnston, Lieut. J. T. ELLIS, Dothan.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. E. O'CONNELL, Birmingham.

To Hot Springs, N. C., from Eastview, Major J. N. BAKER, Montgomery.

The following orders have been revoked: *To Camp Sevier, S. C., to examine the troops* for cardiovascular diseases, from Camp Crane, Lieut. A. L. KELLY, Birmingham. *To Fort McHenry, Md.*, from Camp Crane, Capt. L. V. McVAY, Salitpa. *To Fort Snelling, Minn.*, from Camp Crane, Lieut. S. C. WOOD, Birmingham.

Arkansas

To Camp Hancock, Ga., base hospital, from Camp Gordon, Capt. R. L. SANDERS, Hot Springs.

To Washington, D. C., St. Elizabeth's Hospital, Capt. E. P. BLEDSOE, Little Rock.

California

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. T. M. HART, Los Angeles.

To Biltmore, N. C., from Camp Crane, Capt. E. H. THOMPSON, Burbank.

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Capt. L. R. WILLSON, Fresno.

To Detroit, Mich., from Fort Riley, Lieut. R. N. BRAMHALL, Fair Oaks.

To Fort Oglethorpe, from Camp Crane, Lieuts. A. L. COHN, W. E. KAY, Jr., San Francisco.

To Walter Reed General Hospital, D. C., for instruction, from Camp Cody, Capt. T. J. BERGGREN, Coronado.

To Washington, D. C., from Pittsburgh, Major P. M. THOMAS, San Francisco.

The following order has been revoked: *To Detroit, Mich.*, from Camp Crane, Lieut. J. H. SCHAEFER, Los Angeles.

Colorado

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Capts. C. F. EAKINS, Brush; F. P. GENGENBACH, Denver.

To Walter Reed General Hospital, D. C., from Army Medical School, Lieut. W. D. FLEMING, Denver.

Connecticut

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. H. VAN STRANDER, Hartford.

To Washington, D. C., and on completion *to Camp Custer, Mich.*, from New Haven, Capt. D. M. LEWIS, New Haven.

The following orders have been revoked: *To Army Medical School*, from Walter Reed General Hospital, Major H. F. STOLL, Hartford. *To Camp Lee, Va.*, base hospital, from Williamsbridge, Capt. F. C. Hyde, Greenwich.

Delaware

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. V. MARSHALL, Wilmington.

District of Columbia

To Army Medical School, as Commandant, from Washington, Brig.-Gen. F. A. WINTER.

To Chicago, Ill., from the Surgeon-General's Office, Col H D. SNYDER.

To Fort McHenry, Md., from Camp Crane, Capt. H. F. W. WARDEN, Washington.

To Hot Springs, N. C., from New Haven, Capt. A. M. MACNAMEE, Washington.

To Lakewood, N. J., from the Surgeon-General's Office, Major T. D. HURLEY.

To Washington, D. C., Surgeon-General's Office, from Army Medical School, Col. W. P. CHAMBERLAIN.

Florida

To Camp Meade, Md., from Fort Oglethorpe, Lieut. R. G. NELSON, Tampa.

To Pittsburgh, Pa., from Fort Oglethorpe, Major J. W. HARGIS, Pensacola.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Capt. T. Z. CASON, Jacksonville.

The following order has been revoked: *To Camp Sevier, S. C.*, with the board examining the troops for cardiovascular diseases, from Camp Crane, Lieut. C. R. MARNEY, Tampa.

Georgia

To Biltmore, N. C., from Fort Oglethorpe, Capt. J. T. FLOYD, Atlanta.

To Camp Abraham Eustis, Va., as camp surgeon, from Fort Oglethorpe, Lieut.-Col. C. D. COWLES, Jr.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. C. H. WALKER, Macon.

To Camp Hancock, Ga., from Fort Oglethorpe, Capt. J. T. STUKES, Americus.

To Camp Kearney, Calif., as camp surgeon, from Fort Oglethorpe, Lieut.-Col. J. E. BASTION.

To Camp Zachary Taylor, Ky., as camp surgeon, from Fort Oglethorpe, Col. J. C. GREGORY.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. L. W. CHILDS, Atlanta.

To Fort McPherson, Ga., from Camp Dix, Lieut. V. G. WILLIAMS. Odessadale; from Fort Oglethorpe, Capt. A. D. LITTLE, Thomasville.

To Newport News, Va., from Fort Oglethorpe, Lieut.-Col. H. H. BAILY.

To Richmond, Va., from Camp Wadsworth, Capt. A. P. FLOWERS, Atlanta.

The following orders have been revoked: *To Fort McHenry, Md.*, from Camp Crane, Capt. E. G. ADAMS, Greensboro; Lieut. J. A. McGARITY, Augusta.

Illinois

To Camp Custer, Mich., base hospital, Lieut.-Col. J. T. CASE, Chicago.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Capt. R. W. OAKLEY, Moline; Lieuts. W. TYLER, Chicago; E. E. BULLARD, Girard; from New Haven, Capt. E. SARGENT, Moline; Lieut. W. J. SCHOLES, Chicago.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Capt. F. P. HORAN, Evanston; Lieut. R. E. STOBIE, Chicago

To Camp Sheridan, Ala., base hospital, from Camp Custer, Capt. D. N. EISENDRATH, Chicago.

To Camp Wheeler, Ga., from Camp McClellan, Lieut. G. F. RENDLEMAN, Anna.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. J. B. SONNENSCHEIN, Chicago; B. L. VILNA, Cicero.

To Colonia, N. J., from Fort Oglethorpe, Lieut. C. E. ROBB, Rock Island.

To Detroit, Mich., from Camp Logan, Capt. F. G. DYAS, Chicago; from Fort Riley Lieut. D. KLEMPTNER, Chicago.

To Fort Benjamin Harrison, Ind., from Fort McHenry, Capt. P. P. HASLITT, Marshall.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. R. LAVIERI, Chicago.

To Fort Douglas, Utah, from Fort Oglethorpe, Lieut. A. E. LEHNER, Chicago.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. V. N. La MARRE, Chicago.

To Fort Monroe, Va., from Camp Abraham Eustis, Capt. G. M. McLEAN, Chicago.

To Fort Ontario, N Y., from Camp Crane, Lieut. E. A. CORCORAN, Chicago.

To Fort Sheridan, Ill., from Camp Crane, Lieut. B. G. R. WILLIAMS, Paris; from Fort Oglethorpe, Capt. E. J. HOGLUND, Chicago.

To *Fort Snelling, Minn.*, from Camp Crane, Lieut. J. T. MEYER, Chicago.

To Plattsburg Barracks, N. Y., from Fort Sheridan, Capt. W. H. GAMBILL, Centralia.

To Walter Reed General Hospital, D. C., from Pittsburgh, Major G. F. SUKER, Chicago.

To Washington, D. C., Surgeon-General's Office, from Camp Lee, Capt. E. A. OLIVER, Chicago; from Fort Riley, Lieut. T. J. LEMPING, Chicago.

The following orders have been revoked: *To Camp A. A. Humphreys, Va., to examine the command* for cardiovascular diseases, from Camp Sevier, Lieut. T. S. HUGGARD, Chicago. *To Camp Sevier, S. C., to examine the command* for cardiovascular diseases, from Camp Crane, Lieut. T. S. HUGGARD, Chicago. *To Fort Sheridan, Ill.*, from Fort Oglethorpe, Capt. W. F. McNARY, East St. Louis; Lieut. W. WILLIAMS, Chicago. *To Richmond, Va.*, from Camp Crane, Capt. C. A. ALBRECHT, Chicago.

Indiana

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. C. C. FUNK, New Albany.

To Camp Devens, Mass., as tuberculosis examiner, from New Haven, Capt. E. A. CRULL, Fort Wayne.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. T. S. SCHILT, Bremen.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. G. C. COULBOURN, Marion Station.

To Detroit, Mich., from Camp Zachary Taylor, Capt. F. S. CROCKETT, La Fayette; from Fort Oglethorpe, Capts. W. C. SQUIER, Milton, W. H. BAKER, South Bend.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Capt. B. M. HUTCHINGS, Terre Haute.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. J. H. COOK, Terre Haute.

To Fort Snelling, Minn., from Fort Riley, Capt. W. M. STOUT, Indianapolis.

To Hoboken, N. J., from Camp Crane, Lieut. C. E. JUMPER, Terre Haute.

To Pittsburgh, Pa., from Fort Oglethorpe, Lieut. L. R. ELLARS, Peru.

To West Baden, Ind., from Fort Oglethorpe, Capt. J. B. STALKER, Borden.

Iowa

To Camp Gordon, Ga., from Fort Riley, Capt. F. P. LEEHEY, Oelwein.

To Chicago, Ill., from Fort Oglethorpe, Lieut. T. W. BLACHLEY, Centerville.

To Denver, Colo., from Fort Riley, Capt. J. G. RYAN, New Sharon.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. C. M. WRAY, Iowa Falls.

To Fort McHenry, Md., from Camp McClellan, Lieut. J. J. BEATTY, Farragut.

To Fort Porter, N. Y., from Ann Arbor, Lieut. E. P. BENEDICT, Battle Creek.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. M. T. EASTON, Conway.

To Long Beach, N. Y., from Camp Crane, Lieut. M. O. BRUSH, Shenandoah.

To Washington, D. C., Surgeon-General's Office, from Camp Wadsworth, Capt. G. H. STEELE, Belmont; from Fort Riley, Capt. H. M. AUSTIN, Wellman.

The following order has been revoked: *To Detroit, Mich.*, from Camp Crane, Lieut. W. W. MURPHY, Lewis.

Kansas

To Camp Bowie, Texas, base hospital, from New Haven, Lieut. C. A. McKINLAY, Wichita.

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Lieuts. D. L. MORGAN, Emporia; E. L. KALBFLEISCH, Newton.

To Fort Snelling, Minn., from Fort Riley, Capt. S. M. MYERS, Potter.

Kentucky

To Camp Abraham Eustis, Va., base hospital, from Fort Oglethorpe, Capt. C. A. VANCE, Lexington.

To Camp Gordon, Ga., base hospital, from Camp Wadsworth, Lieut. G. BELOTE, Mayfield.

To Colonia, N. J., from Fort Oglethorpe, Capt. W. A. BUSH, Winchester.

To Corpus Christi, Texas, from Fort Oglethorpe, Lieut. J. E. H. WILLIS, Lexington.

To Detroit, Mich., from New Haven, Lieut. W. H. ALLEN, Louisville.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. I. N. KERNS, Louisville.

Louisiana

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. C. P. HOLDERITH, New Orleans.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. G. J. D. REYNA, Jr., New Orleans.

To Fort Logan H. Roots, Ark., from Fort Oglethorpe, Lieut. J. T. NIX, Jr., New Orleans.

Maine

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. J. F. COX, Bangor.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. R. J. MORIN, Lewiston.

To Camp Jackson, N. C., base hospital, from Fort Oglethorpe, Capt. C. M. ROBINSON, Portland.

To Camp Zachary Taylor, Ky., base hospital, from Camp Greene, Capt. H. J. EVERETT, Portland.

Maryland

To Azalea, N. C., from Fort Oglethorpe, Lieut. G. G. E. CROSS, Baltimore.

To Biltmore, N. C., from Camp Sherman, Lieut. W. M. PRIEST, North East.

To Camp Jackson, N. C., base hospital, from Fort Oglethorpe, Lieut. E. P. SMITH, Baltimore.

To Camp Meade. Md., base hospital, from New Haven, Lieut. F. W. HATCHEL, Baltimore.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Major C. W. HOFFMAN, Baltimore.

To Pittsburgh, Pa., from Camp Crane, Capt. E. H. TEETER, Baltimore; from Fort Oglethorpe, Lieut. W. L. RAEMORE, Baltimore.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Lieut.-Col. G. L. QUALLS.

To Washington, D. C., Surgeon-General's Office, from Fort Hancock, Capt. F. K. NICHOLS, Baltimore.

The following orders have been revoked: *To Camp Sevier, S. C., to examine the command* for nervous and mental diseases, from Camp Crane, Capt. H. N. SISCO, Baltimore. *To Fort Snelling, Minn.*, from Camp Crane, Lieut. A. A. PARKER, Pocomoke City.

Massachusetts

To Army Medical School, to examine the command for cardiovascular diseases, from Camp A. A. Humphreys, Lieut. H. A. WALKER, Somerville.

To Boston, Mass., from Camp Crane, Lieut. G. A. BUCKLEY, Brockton; from Fort Oglethorpe, Lieuts. W. H. SHERMAN, Graniteville; F. H. LALLY, Milford; from New Haven, Lieut. J. E. WATERS, Gardner.

To Camp Meade, Md., base hospital, from Camp Devens, Major J. W. SCHIRMER, Boston.

To Camp Shelby, Miss., base hospital, from Camp Jackson, Major G. S. C. BADGER, Boston.

To Camp Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. J. E. GRADY, Leominster.

To East Norfolk, Mass., from New Haven, Capt. F. H. HIBBEN, Brookline.

To Fort McHenry, Md., from Fort McPherson, Lieut. D. B. COLEMAN, Wellesley; from Fort Oglethorpe, Lieut. R. J. COOK, Boston.

To Lakewood, N. J., from Camp Greene, Lieut. C. C. STURGIS, Boston.

To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut. W. M. COLLINS, Lowell.

To Plattsburgh Barracks, N. Y., from Fort Oglethorpe, Lieut. M. B. RADDING, Springfield.

To Richmond, Va., from Camp Sevier, Lieut. A. A. RATTEY, Newton.

To Walter Reed General Hospital, D. C., from Army Medical School, Lieut. L. H. ROCKWELL, Boston.

To Washington, D. C., Surgeon-General's Office, from Camp Meade, Capt. W. J. HAMMOND, Boston.

To Williamsbridge, N. Y., from Fort Ethan Allen, Capt. F. T. CLARK, Westfield.

The following orders have been revoked: *To Camp Grant, Ill.*, base hospital, from Fort Oglethorpe, Capt. J. N. BOYER, Springfield. *To Lakewood, N. J.*, from Camp Crane, Lieut. E. A. ADAMS, Newton. *To Richmond, Va.*, from Camp Crane, Lieut. E. J. GRAINGER, Winthrop.

Michigan

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Lieut. R. H. SNOWDEN, Galien.

To Camp Dodge, Iowa, to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. J. H. RAPP, Lansing.

To Camp Kearney, Calif., from Camp MacArthur, Capt. J. O. PARKER, Owosso.

To Chicago, Ill., from Fort Oglethorpe, Lieut. T. H. E. BEST, Detroit.

To Detroit, Mich., from Fort Oglethorpe, Lieut. J. W. WARREN, Detroit.

To Fort Benjamin Harrison, Ind., from Colonia, Major N. S. MACDONALD, Houghton.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. L. E. BOVIK, Crystal Falls.

To Fort Sill, Okla., base hospital, from Camp Crane, Capt. K. F. MANCY, Detroit.

To Hoboken, N. J., from Fort Oglethorpe, Capt. A. E. PATTERSON, Plymouth.

To West Baden, Ind., from Fort Oglethorpe, Capt. G. A. SEYBOLD, Jackson.

The following orders have been revoked: *To Boston, Mass.*, from Camp Crane, Major C. D. BROOKS, Detroit. *To Camp A. A. Humphreys, Va., to examine the command* for nervous and mental diseases, from Fort Oglethorpe, Lieut. J. G. GAGE, Battle Creek. *To Camp Sherman, Ohio*, from Camp Crane, Capt. L. J. PINNEY, Detroit. *To Fort McHenry, Md.*, from Camp Crane, Lieut. C. E. VREELAND, Detroit. *To Lakewood, N. J.*, from Fort Oglethorpe, Capt. F. B. MINER, Flint.

Minnesota

To Camp Meade, Md., from Fort Oglethorpe, Capt. G. L. GOSSLEE, Moorhead.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. A. H. COLLINS, Duluth; from Newport News, Capt. J. L. CRENSHAW, Rochester.

To Fort McHenry, Md., from Camp Lee, Lieut. G. V. LYNCH, Winona.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. H. F. RAWLINGS, Evaleth.

To Fort Snelling, Minn., from Fort Oglethorpe, Capts. J. R. KUTH, Duluth; W. W. HIGGS, Park Rapids; from Fort Riley, Lieut. W. A. MEIERDING, Springfield.

To Walter Reed General Hospital, D. C., from Cape May, Major J. F. CORBETT, Minneapolis.

Mississippi

To Camp Sheridan, Ala., to examine the command for nervous and mental diseases, from Fort Ontario, Capt. J. H. FOX, Jackson.

Missouri

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Capt. J. E. BAIRD, Excelsior Springs.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. W. D. AUFDERHEIDE, St. Louis.

To Fort Douglas, Utah, from Fort Oglethorpe, Capt. J. H. HUMPHREY, St. Louis.

To Fort Riley, base hospital, from New Haven, Capt. F. COHEN, Lieut. J. F. BROOKE, Kansas City.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. H. B. DAVIS, Kansas City; *from New York*, Capt. R. D. IRLAND, Kansas City.

To Fort Snelling, Minn., from Fort Riley, Lieuts. A. McCLORY, L. W. SCHREIBER, St. Louis.

To Fort Worden, Wash., from Fort Riley, Lieut. S. FORSTOT, St. Joseph.

To Hoboken, N. J., from Camp Joseph E. Johnston, Capt. H. S. MAJOR, Fulton.

Montana

To Army Medical School for instruction, from Fort Oglethorpe, Capt. A. G. FULLER, Missoula.

To Camp Upton, N. Y., from Camp Fremont, Capt. E. C. ANDERSON, Missoula.

Nebraska

To Camp Dodge, Iowa, base hospital, from New Haven, Lieut. A. L. BARR, Omaha.

To Cape May, N. J., from New Haven, Capt. E. H. McLEAN, Omaha.

To Fort Worden, Wash., from Fort Riley, Lieut. I. H. LEVIN, Venango.

New Hampshire

To Boston, Mass., from Fort Oglethorpe, Lieut. E. D. MIVILLE, Manchester.

To Fort McHenry, Md., from Army Medical School, Major R. J. GRAVES, Concord.

New Jersey

To Boston, Mass., from Fort Oglethorpe, Capt. J. N. RYAN, Passaic; Lieut. A. P. DONOHO, Merchantsville.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. N. P. LOBSENZ, Passaic.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. T. SENSEMAN, Atlantic City.

To Camp Lee, Va., base hospital, from New Haven, Capt. H. E. MATTHEWS, Orange.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. W. A. BULLMAN, Red Bank.

To Detroit, Mich., from Fort Riley, Lieut. J. W. HUGHES, Atlantic City.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. R. D. VREELAND, Clifton.

To Garden City, N. Y., from Millington, Tenn., Major F. G. ANGENY, Avon-by-the-Sea.

To Hoboken, N. J., from Camp Crane, Capt. J. H. ORAM, Paterson; from Camp Wheeler, Capt. W. J. ARLITZ, Hoboken.

To Lakewood, N. J., from Camp Dix, Lieut. J. R. COMMORATO, Jersey City; from Fort Oglethorpe, Lieut. H. R. VAN NESS, Newark.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. R. D. BAKER, Summit.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Metuchen, Major H. L. KRAFFT.

To Washington, D. C., from Walter Reed General Hospital, Lieut. M. K. SMITH, Morristown.

New York

To Boston, Mass., from Fort Oglethorpe, Capt. L. H. SMITH, East Aurora; Lieut. R. L. McCREADY, New York.

To Camp Abraham Eustis, Va., base hospital, from Fort Oglethorpe, Lieut. M. E. MINTZ, New York.

To Camp Dix, N. J., base hospital, *from New Haven*, Lieuts. J. H. GLOBUS, S. MORSE, New York.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. M. F. HALL, Elmira.

To Camp Hancock, Ga., as tuberculosis examiner, from Camp Joseph E. Johnston, Lieut. W. B. EBERLING, Brooklyn; from the Surgeon-General's Office, Major J. T. SPRAGUE, Staten Island.

To Camp Joseph E. Johnston, Fla., base hospital, *from Fort Oglethorpe*, Capt. C. C. ZACHARIE, White Plains.

To Camp McClellan, Ala., base hospital, from Camp Custer, Capt. S. ERDMAN, *New York*; from Fort Oglethorpe, Capt. C. V. BROOKS, Canandaigua.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. R. G. HAYS, Brooklyn. Base hospital, from Fort Oglethorpe, Capts. J. R. GRANT, Cincinnatus; T. J. KIEFFER, Rochester.

To Camp Sevier, S. C., base hospital, from New Haven, Capt. M. C. FIELD, Brooklyn.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. C. S. BERGMANN, West Haverstraw. Base hospital, from New Haven, Capt. R. A. LAMBERT, *New York*; *Lieut.* L. R. SISSON, Auburn.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. J. C. HUGHES, New York.

To Cape May, N. J., from Fort Oglethorpe, Lieuts. G. C. ANDERSON, New York; J. C. FLYNN, Rochester.

To Carlisle, Pa., from Camp Zachary Taylor, Lieut. J. A. HYAMS, New York; from Fort Oglethorpe, Capt. E. W. JACKSON, Rochester.

To Colonia, N. J., from Camp Crane, Capt. F. COONLEY, Staten Island; from Camp McClellan, Lieut. R. M. FIELD, Brooklyn; from Fort Oglethorpe, Lieut. J. SHARLIT, New York.

To Corpus Christi, Texas, from Fort Oglethorpe, Capt. P. V. COSTELLO, *Brooklyn*.

To Dansville, N. Y., from New Haven, Lieut. T. S. WINSLOW, New York.

To Detroit, Mich., from Camp Crane, Capt. A. S. ARMSTRONG, New York.

To East View, N. Y., from Fort Oglethorpe, Lieut. P. MARVEL, Jr., New York.

To Fort McHenry, Md., from Camp McClellan, Lieut. J. HEINE, New York; from Fort Oglethorpe, Lieuts. E. C. PLACE, Brooklyn; H. H. SHIRAS, New York.

To Fort Myer, Va., from Camp Greene, Lieut. J. G. J. GRIMLEY, New York.

To Fort Oglethorpe, from Camp Crane, Major J. E. CONBOY, New York.

To Fort Ontario, N. Y., from Fort Oglethorpe, *Lieuts.* A. H. PAINE, Rochester; G. L. WRIGHT, Syracuse.

To Fort Sheridan, Ill., from Walter Reed General Hospital, Capt. C. P. HUTCHINS, Kingston.

To Garden City, N. Y., from Camp Greene, Major A. M. CACCINI, New York.

To Hoboken, N. J., from Camp Sevier, Capt. J. L. BENDELL, Albany; from Fort Monroe, Major J. B. COOKE, Cooperstown; from Fort Oglethorpe, Lieuts. O. S. McKEE, Buffalo; A. F. A. DOOLING, R. PEMBERTON, New York; from New Haven, Lieut. D. M. MARKOFSKY, *New York*.

To Hot Springs, N. C., from Camp Crane, Lieut. J. J. MADDEN, Brooklyn.

To Lakewood, N. J., from Camp Dix, Lieuts. C. SHOCKOFF, Brooklyn; F. W. BISHOP, E. R. WARE, New York; from Camp Lee, Lieut. H. C. FURMAN, *New York; from* Camp Meade, Lieut. W. PHIPARD, New York; from Camp Wadsworth, Major T. W. MALONEY, Geneva; from Fort Oglethorpe, Lieut. A. B. LEVY, New York.

To Long Beach, N. Y., from New Haven, Lieut. J. L. MANGANO, Buffalo.

To Madison Barracks, N. Y., from Fort Oglethorpe, Capt. E. C. THOMPSON, Newburgh.

To New Haven, Conn., from Fort Oglethorpe, Lieut. J. J. BOLAND, New York.

To Newport News, Va., from Cape May, Capt. W. H. SANFORD, Long Island.

To Otisville, N. Y., from Fort Oglethorpe, Lieut. L. SASOVER, New York.

To Pittsburgh, Pa., from Camp Crane, Lieut. W. L. MUNSON, Granville; from Fort Oglethorpe, Capt. S. T. HUBBARD, New York.

To Plattsburg Barracks, N. Y., from New Haven, Lieut. V. R. EHLE, Gloversville.

To Walter Reed General Hospital, D. C., from New York, Major E. F. BUTLER, Yonkers.

To Washington, D. C., St. Elizabeth's Hospital, from New York, Lieut. F. S. PIERSON, Syracuse. *Surgeon-General's* Office, from Camp Meade, Major H. JAMES, New York; Lieut. F. N. POTTS, Buffalo; from Fort Hamilton, Capt. F. W. HUNTER, Fort Totten; from Hot Springs, Major A. H. BUSBY, *New York*.

To Williamsbridge, N. Y., from Camp Crane, Lieut. E. A. CLARKE, New York.

The following orders have been revoked: *To Camp Bowie, Texas, to examine the command* for nervous and mental diseases, from Camp Crane, Lieut. J. D. TRASK, Jr., New York. *To Camp Dix, N. J.*, from Fort Oglethorpe, Lieut. L. L. COHAN, Brooklyn. *To Camp Jackson, S. C.*, base hospital, *from* Fort Oglethorpe, Capt. C. J. DILLON, New York; Lieut. L. T. FRICKS, Brooklyn. *To Detroit, Mich.*, from Camp Crane, Lieut. R. H. OPPENHEIMER, New York. *To Fort McHenry, Md.*, from Camp Crane, Lieut. P. W. FETZER, New York. *To Fort Ontario, N. Y.*, from Fort Oglethorp, Lieut. S. MILBANK, New York. *To Fort Snelling, Minn.*, from Camp Crane, Lieuts. M. L. POLLACK, Staten Island; J. W. W. DIMON, Utica. *To Lakewood, N. J., from* Camp Crane, Lieuts. J. W. BURTON, Alpine; G. KORNFELD, Brooklyn; J. J. YOUNG, *New York*. *To Middletown, Pa.*, from Fort Oglethorpe, Capt. J. H. KEVAND, Syracuse.

North Carolina

To Camp Devens, Mass., as tuberculosis examiner, from New Haven, Lieut. J. E. COCKE, Asheville.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. J. L. RAWLS, Gatesville.

To Fort Oglethorpe, from New York, Capt. N. D. BITTING, Durham.

To Hot Springs, N. C., from Camp Crane, Major E. A. LOCKETT, Winston-Salem.

Ohio

To Azalea, N. C., Lieut. E. J. BRAUN, Youngstown.

To Camp Dix, N. J., base hospital, from Camp Lee, Major R. H. BIRGE, Cleveland.

To Camp Hancock, Ga., from Fort Oglethorpe, Capt. D. S. HEYN, Cincinnati.

To Camp Holabird, Md., as camp surgeon, from Walter Reed General Hospital, Lieut.-Col. J. A. HALL, Cincinnati.

To Camp Jackson, S. C., from Fort Oglethorpe, Lieut. M. D. GODFREY, Columbus.

To Camp Meigs, D. C., to examine the troops for cardiovascular diseases, from Camp Wheeler, Lieut. C. E. LEMMON, East Liverpool.

To Camp Sevier, S. C., base hospital, from New Haven, Lieut. F. W. RILEY, Akron.

To Camp Sherman, Ohio, base hospital, from New Haven, Capt. C. W. THOMPSON, Cleveland.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. F. W. DIXON, National Military Home.

To Carlisle, Pa., from Camp Sherman, Lieut. S. S. QUITTNER, Cleveland; from Fort Oglethorpe, Lieut. G. HARTNAGEL, Delphos.

To Colonia, N. J., from Fort Oglethorpe, Capt. O. M. WARNER, Conneaut.

To Fort Des Moines, Iowa, from New Haven, Lieut. J. H. WARVEL, Bradford.

To Fort Oglethorpe, from Camp Crane, Lieut. G. T. MEEK, Columbus.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. J. M. THOMAS, Columbus.

To Fort Snelling, Minn., from Cape May, Capt. B. B. NEUBAUER, Cleveland.

To the retired list, from Lexington, Lieut.-Col. J. L. POWELL, Columbus.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Major A. S. McCLAIN, Lakewood.

To West Baden, Ind., from Fort Oglethorpe, Capts. H. H. FISHER, Columbus; K. F. LITTLE, Westwood; Lieut. H. A. BUDD, Cleveland; from New Haven, Lieut. R. E. COLE, Fredericktown.

The following orders have been revoked: *To Camp Meade, Md.*, base hospital, from Fort Oglethorpe; Capt. E. H. SEASON, Cleveland. *To Fort Snelling, Minn.*, from Camp Crane, Lieut. J. T. KENNEDY, Cincinnati.

Oklahoma

To Fort McHenry, Md., from Fort Oglethorpe, Capt. L. A. RIELY, Oklahoma City.

Oregon

To Fort Snelling, Minn., from Boston, Capt. C. J. McCUSKER, Portland.

The following orders have been revoked: *To Boston, Mass.*, from Camp Crane, Capt. E. A. SOMMER, Portland. *To Camp Lewis, Wash.*, base hospital, for instruction, from Camp Crane, Capt. R. E. L. HOLT, Portland.

Pennsylvania

To Army Medical School, from Fort Oglethorpe, Capt. L. S. WALTON, Altoona.

To Camp Benning, Ga., base hospital, from New Haven, Lieut. G. W. RAMSEY, Washington.

To Camp Bowie, Texas, as orthopedic surgeon, from Camp Joseph E. Johnston, Lieut. K. A. BOWMAN, Johnstown.

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. A. S. CANTOR, Dickson City. Base hospital, from Fort Oglethorpe, Capt. W. J. MERRILL, Philadelphia.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. J. M. DICKSON, Gettysburg.

To Camp Lee, Va., base hospital, from the Surgeon-General's Office, Major R. H. BOLLING, Philadelphia.

To Camp Meade, Md., to examine the command for nervous and mental diseases, from Camp Crane, Lieut. P. K. HELLER, Dixmont.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. F. R. BRADEN, Coraopolis.

To Camp Zachary Taylor, Ky., base hospital, from New Haven, Lieut. G. D. HEIST, Philadelphia.

To Cape May, N. J., from Fort Oglethorpe, Lieut. H. W. SCARLETT, Philadelphia; from New York, Lieut. M. McCUTCHEON, Philadelphia.

To Chicago, Ill., from Camp Crane, Lieut. C. B. LAMP, Seminole.

To Colonia, N. J., from Fort Oglethorpe, Lieut. R. F. WEAVER, St. Clair.

To Fort Benjamin Harrison, Ind., from Camp Crane, Capt. C. A. HILL, Pittsburgh; from Fort Oglethorpe, Lieut. J. G. WARNER, Monongahela.

To Fort McHenry, Md., from Camp Shelby, Lieut. W. F. WHITE, Wellsboro; from Fort Oglethorpe, Lieut. O. H. WILSON, Philadelphia; from New Haven, Lieut. D. A. GOODMAN, Old Forge.

To Fort Oglethorpe, from Camp Crane, Lieut. J. S. MORGAN, Crafton.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieuts. M. J. McCALLUM, Erie; W. R. LEVERING, Stroudsburg.

To Lakewood, N. J., from Camp Crane, Lieut. J. H. BARTLELY, Jr., Philadelphia; from Camp Meade, Lieut. C. E. CASE, Philadelphia; from Fort Oglethorpe, Lieut. H. W. JONES, Philadelphia.

To Newport News, Va., from Fort Oglethorpe, Lieut. W. M. YOST, Rochester.

To Richmond, Va., from Camp Wadsworth, Lieut. S. SINGER, Philadelphia.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capts. W. E. LEE, Philadelphia; W. C. SHAW, Ridgeway.

To Washington, D. C., Surgeon-General's Office, from Camp Custer, Capt. J. G. TAYLOR, Tunkhannock. On completion *to Camp Pike, Ark.*, from New Haven, Capt. W. L. STEEN, New Castle.

The following orders have been revoked: *To Camp Gordon, Ga.*, to examine the troops for nervous and mental diseases, from Fort Oglethorpe, Lieut. W. C. CHANEY, Philadelphia. *To Camp Henry Knox and Camp Zachary Taylor, Ky.*, to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. C. FALKOWSKY, Jr., Scranton. *To Camp Sevier, S. C.*, to examine the troops for cardiovascular diseases, from Camp Crane, Lieut. E. T. JONES, St. Clair. *To Detroit, Mich.*, from Camp Crane, Lieut. M. B. MAGOFFIN, Pittsburgh. *To Fort Snelling, Minn.*, from Camp Crane, Lieuts. J. L. ZIMMERMAN, Hershey; D. BEVERIDGE, Washington. *To Lakewood, N. J.*, from Camp Crane, Capt. L. M. HARTMAN, Jr., York; Lieuts. M. KEMP, Catasavana; E. H. BEDROSSIAN, Philadelphia. *To Richmond, Va.*, from Camp Crane, Lieut. C. A. GUNDY, Lewisburg.

Rhode Island

To Canal Zone, from Azalea, Major G. W. GARDNER, Providence.

To Markleton, Pa., from New Haven, Capt. H. G. PALMER, Providence.

South Carolina

To Army Medical School, from Fort Oglethorpe, Lieut. E. M. DIBBLE, Marion.

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. S. ZIMMERMAN, Spartanburg.

To Pittsburgh, Pa., from Camp Sevier, Lieut. R. CATHCART, Charleston.

To Washington, D. C., Surgeon-General's Office, from Camp Meade, Major H. C. PARSONS, Watertown.

Tennessee

To Camp Fremont, Calif., base hospital, from New Haven, Lieut. G. T. WILHELM, Memphis.

To Camp McClellan, Ala., base hospital, from Camp Crane, Lieut. A. T. SIKES, Nashville.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. W. STEELE, Chattanooga.

To Cape May, N. J., from Fort Oglethorpe, Capt. J. H. DYER, Wartrace.

The following order has been revoked: *To West Baden, Ind.*, from Camp Crane, Lieut. H. K. ALEXANDER, Nashville.

Texas

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. L. H. LANIER, Texarkana.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major R. F. SAUNDERS, Fort Worth.

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Lieut. J. R. ELLIOTT, Palacios.

To Camp Logan, Texas, base hospital, from New Haven, Lieut. C. H. HENDRY, Galveston.

To Camp Shelby, Miss., base hospital, from Camp Crane, Lieut. E ACKER, Pasadena; from Camp MacArthur, Major H. C. BIERBOWER.

To Corpus Christi, Texas., from Fort Oglethorpe, Capt. W. E. CHILTON, Fort Worth; Lieut. E. H. NEWTON, Corsicana.

To Fort Sam Houston, Texas, from New Haven, Capt. L. YATER, Cleburne.

To Fort Sill, Okla., base hospital, from New Haven, Lieut. G. TURNER, Iredell.

To Fort Worden, Wash., from Fort Riley, Lieut. A. J. SHARP, Franklin.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Rochester, Minn.*, for instruction, from Camp MacArthur, Major W. P. DAVENPORT.

The following order has been revoked: *To Camp Bowie, Texas*, base hospital, for instruction, from Camp Crane, Capt. A. M. McELHANNON, Sherman.

Utah

To Camp MacArthur, Texas, base hospital, from New Haven, Capt. J. J. GALLIGAN, Salt Lake City.

To Denver, Colo., from New Haven, Lieut. L. S. MERRILL, Brighton.

Vermont

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. C. L. GANNON, Burlington.

To Detroit, Mich., from Franklin, Ind., Capt. N. J. DELEHANTY, Rutland.

To Long Beach, N. Y., from New Haven, Lieut. A. L. FOGG, Underhill Center.

Virginia

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capts. A. P. DERBY, Monrovia; J. D. OSBORNE, Petersburg; C. M. EDWARDS, Richmond.

To Cape May, N. J., from New York, Lieut. J. S. WEITZEL, Richmond.

To Fortress Monroe, Va., from Camp Lee, Capt. E. P. ODEND'HAL, Wytheville.

To Garden City, N. Y., from Washington, Major J. N. BARNEY, Fredericksburg.

Washington

To Carlisle, Pa., from Camp Crane, Major F. P. GARDNER, Seattle.

To Fort Monroe, Va., from Camp Crane, Capt. C. R. McCREERY, Tacoma.

To San Francisco, Calif., Letterman General Hospital, from New York, Major W. N. KELLER, Fort Steilacoom.

West Virginia

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. R. G. WERNER, Parkersburg.

To Charleston, S. C., from New Haven, Lieut. D. H. HILL, Charleston.

To Fort McPherson, Ga., from Camp Crane, Lieut. H. H. ESKER, Clarksburg.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. R. H. WALKER, Charleston.

The following orders have been revoked: *To Boston, Mass.*, from Camp Crane, Capt. W. S. FULTON, Wheeling. *To Lakewood, N. J.*, from Camp Crane, Lieut. C. P. S. FORD, Hansford.

Wisconsin

To Azalea, N. C., from Fort Oglethorpe, Lieut. R. L. PREES, Cambria.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. R. J. GOGGINS, Oconto Falls.

To Fort Snelling, Minn., from New Haven, Lieut. L. R. FOWZER, Manawa.

The following order has been *revoked*: *To Camp Gordon, Ga.*, to examine the command for cardiovascular diseases, from Fort Oglethorpe, Lieut. R. E. FITZGERALD, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg. General B. S. WARREN, represent the Service and deliver an address at an open forum of the Birmingham, Ala., Civic Association on Jan. 13, 1919.

Surg. B. W. BROWN, relieved at Seattle, Wash., proceed to Los Angeles, Calif., and assume charge of the Service at that port.

Surg. FRIENCH SIMPSON, proceed to the Mobile Quarantine Station and assume temporary charge for a period of about one month.

Passed Asst. Surg. BAYLIS H. EARLE, relieved at Port Townsend, Wash., proceed to Portland, Ore., and assume charge of the Service at that port.

Asst. Surg. C. J. McDEVITT, relieved at San Francisco, Calif., proceed to Port Townsend, Wash., and assume charge of the quarantine service at that place.

Asst. Surg. B. E. ROBERTS, relieved from further duty in epidemiological work in connection with influenza and proceed to marine hospital, Stapleton, N. Y.

Acting Asst. Surgeons E. E. ADEL, S. B. BOWNE, H. R. CARROLL, MARION GLENN, W. P. S. HENRY, E. J. KEHOE and CORA A. MOON, directed to proceed to Harrisburg, Pa., for duty in connection with influenza control.

Acting Asst. Surg. W. S. Ritenour, relieved at Anniston, Ala., proceed to Raleigh, N. C., for duty in extracantonment sanitation.

Acting Asst. Surg. L. J. ZELLER, proceed to Harrisburg, Pa., for duty in connection with influenza control.

Asst. Epidem. W. K. SHARP, proceed to Centerville, Ala., to investigate a reported outbreak of smallpox.

Tech. Asst. A. SEIDELL, proceed to Boston, Mass., in connection with development of poisonous gases.

Scien. Asst. I. B. KRAUSE, proceed to Philadelphia, Pa., for duty with the Emergency Fleet Corporation in connection with the sanitation of shipyards.

Scien. Asst. TOM PAISLEY, proceed to Hope, Ark., for survey concerning influenza control and methods for the control of malaria.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Camp Grant as Reconstruction Post.—January 2, it was announced that Camp Grant has been selected among the eighteen cantonments designated as locations for reconstruction hospitals for the education and curative treatment of convalescent soldiers. Capt. Rouel H. Sylvester, U. S. Army, has been named as educational director for the new project.

Tuberculosis Offices Consolidated.—The Chicago and Springfield offices of the Illinois Tuberculosis Association will be consolidated immediately and operated in Springfield in the future. It is said that forty counties of Illinois have already taken advantage of the tuberculosis act which authorizes a county to establish and maintain a sanatorium for the care of patients suffering from tuberculosis.

Survey of Itinerant Physicians.—The director of the State Department of Registration and Education has addressed a letter to the secretary of each county medical society in the state asking information regarding the activities of traveling physicians who operate in the state of Illinois. The information desired is: (1) the names; (2) samples of advertising material used; (3) itineraries announced; (4) home addresses of itinerant physicians, and (5) information regarding citizens who may have fared ill at the hands of such practitioners.

New County Officers.—At the annual meeting of the Kankakee County Medical Society held in Kankakee, December 19, Dr. Eugene Cohn, superintendent of the Kankakee State Hospital, was elected president; Dr. Daniel J. O'Loughlin, vice president, and Dr. James T. Rooks was reelected secretary-treasurer, all of Kankakee.——At the annual meeting of the Adams County Medical Society held in Quincy, December 11, Dr. Adelbert M. Austin, Mendon, was elected president; Drs. Henry P. Beirne and Earl L. Caddick were elected vice presidents; Dr. Elizabeth B. Ball was reelected secretary, and Dr. Charles E. Ericson was elected treasurer, all of Quincy.

Illegal Practitioners Convicted.—Two illegal practitioners of medicine, Charles J. Brutus and F. W. Lensemeyer, were convicted in the county court of Champaign County, recently, for violating the Medical Practice Act through action taken by the Department of Registration and Education of the State of Illinois. Brutus is an old offender, but Lensemeyer is a newcomer, having come to Illinois from Michigan about a year ago. Both cases were bitterly contested. Mr. Morris of the firm of Morris and Hartwell of LaCrosse, Wis., general attorneys for the National Association of Chiropractors, and two local attorneys represented the defendants. Hon. Louis A. Busch, state's attorney of Champaign County, conducted the prosecution for the state and is said to deserve great credit for the able manner in which he handled the cases. Regular motions for new trials were made by the defendants. If the motions are denied, the amount of the fines to be imposed on Brutus and Lensemeyer will be announced by the court.

Chicago

Held for Selling Habit-Forming Drugs.—Dr. Edmond D. Converse was arrested, December 30, after having, it is alleged, pleaded guilty to the sale of 600 grains of heroin to a young man and woman at his office.

Personal.—Dr. Frank Smithies has been appointed medical consultant to the United States Marine Hospital at the port of Chicago, by the Surgeon-General of the U. S. P. H. S.——Dr. Walter S. Haines has been appointed a state food standard officer.

Report on the Influenza Epidemic.—The entire staff of the department of health of the city has collaborated in a complete report of the 1918 epidemic of influenza in a pamphlet of 110 pages. As far as the city was concerned, the epidemic began to show itself in the death returns, September 21, reached its height, October 17, and gradually declined until for the week ending November 23, the death rate had again reached 16 per thousand of population, which is about the normal rate. From September 21 to November 16, there were reported 37,921 cases of influenza and 13,109 cases of pneumonia, a total of 51,030 cases. The report details the efforts of the department in cooperation with the state and national health departments and the citizens in combating the epidemic, and in charts, tables and text analyzes the figures from all aspects—age, sex, civil state, nationality, etc.—and gives for comparison figures and other information in regard to the epidemic in other cities and in the Army camps. The pamphlet makes an interesting permanent record of the great epidemic, which has not yet entirely subsided, but shows still its effects in the sickness and mortality rates through recrudescences, from time to time, of greater or less extent.

INDIANA

Tuberculous Clinics to Be Established.—At a recent meeting of representatives of the city board of health, Chamber of Commerce and the Marion County Society for the Prevention of Tuberculosis, Indianapolis, it was suggested that a chain of tuberculosis clinics should be established in Indianapolis, that a permanent hospital for advanced cases of tuberculosis, both in white and colored people, should be provided as a supplement to Sunnyside Sanatorium, and that steps should be taken at once to battle against the rapid inroads of the disease.——The citizens of Lake County have voted in favor of the expenditure of $100,000 for the erection of a tuberculosis hospital. This hospital will also be open to returned soldiers.

Personal.—Dr. Hugh D. Wood, Angola, is reported to be critically ill.——Dr. Lewis L. Williams has been appointed city health commissioner of Brazil.——Dr. Thomas W. Moorhead, Terre Haute, has declined a position on the city board of health offered him by the mayor.——In the case of Dr. Nelson B. Ross, Muncie, who served nine months in the state penitentiary for murder, and who sought clemency, the state department has continued the case.——Dr. A. W. Tobias, Elwood, charged with assault and battery is said to have been assessed a fine of $100 and to have been sentenced to imprisonment for six months on the Penal Farm. The latter part of the sentence was, however, suspended and the prisoner paroled.

Sanatorium Notes.—The Antituberculosis Society of Noble County is negotiating with similar societies of Allen and DeKalb counties with a view of obtaining a joint hospital for the treatment of tuberculosis.——The Vanderburg County Council has decided that it cannot at present accept the Boehne Hospital, Evansville, as a county institution. It is voted, however, that in realization of the value of the institution, $10,000 be appropriated to meet its current expenses until the beginning of the year. It is also decided that, beginning January 1, an appropriation of $2,000 per month will be paid to the Vanderburg County Antituberculosis Society for the maintenance of the institution. This will provide a fund of $25,500 for maintenance during 1919.

MAINE

Survey of Lewiston and Auburn.—The state department of health has caused to be made health surveys of Lewiston and Auburn, and an analysis of the local health organization and administration, and recommends a number of things for the improvement of the service in both places. Both cities have part time boards of health composed of men not versed in sanitary science and are without expert advisers in such matters. The administration of public health work in these places is therefore said to be inefficient, wasteful, and does not obtain satisfactory results. The sanitary problems of the two cities are identical and they may be classed as one, and the following personnel for a modern health department for both is recommended: one expert health officer, one full time bacteriologist, two sanitary inspectors, three public health nurses and a clerk. Such a department would cost to maintain approximately $17,000. A number of recommendations are made with reference to milk and food inspection, school inspection, vital statistics, waste disposal and the sewerage of both cities on a definite plan, etc.

MARYLAND

Venereal Detention House to Be Established.—The state health department is perfecting plans for the establishment in the immediate future of a house of detention where persons affected with venereal disease may be placed for observation and treatment. At present there are two clinics in Baltimore, one at the dispensary of Mercy Hospital and the other at the dispensary of Johns Hopkins Hospital.

Personal.—Brig.-Gen. William S. Thayer, M. C., U. S. Army, who has been serving in France, will, on his return to this country within the next two weeks, resume his duties as professor of medicine of the Johns Hopkins Medical School. Dr. Thayer will take the place of Dr. Theodore C. Janeway, who died several months ago while serving on the staff of the Surgeon-General.——Dr. B. Holly Smith, Baltimore, has been reelected president of the State Game and Fish Protective Association.——Dr. Arthur G. Barrett, Baltimore, has been appointed chief medical examiner of the State Industrial Accident Commission, to succeed Major Robert P. Bay, who has resigned to enter the military service.

Influenza Increasing in Frederick County.—A recrudescence of influenza has become acute in some sections of Frederick County. The localities where the disease is worse are Walkersville, Urbabam and Rocky Ridge. Dr. William E. Todd, Hagerstown, sent by the state board of health, is assisting Dr. Joseph W. Long at Walkersville, and Dr. John D. Nichodemus, Walkersville, who relinquished his practice and retired several years ago, is also helping to fight the disease. Health Officer Dr. T. Clyde Routson, Buckeystown, stated that while many cases are scattered over the country, there was no reason for alarm, but abundant reason to use every precaution against the spread of the epidemic. He has advised against church funerals in cases of death from influenza. A request has been made to the state board of health for a physician at Urbana.

U. S. General Hospital No. 7 to Be Enlarged.—Plans are under way to erect five new buildings and to enlarge to twice its present capacity United States General Hospital No. 7, which is at Evergreen Junior, the residence in Guilford loaned the government by Mrs. T. Harrison Garrett as a recuperation center for blinded American soldiers. Evergreen Junior is not merely a hospital. It is an institution where men who have been suddenly plunged into blindness and despair are physically and mentally rehabilitated for civil life. Follow-up work is carried on, the soldier being followed into civil life and his surroundings arranged in a way calculated to insure his success. Lieut.-Col. James Bordley has general supervision of the work being done at the hospital assisted by Major Nicholas I. Ardan, M. C., commanding officer of the medical and military staff; Charles F. F. Campbell, director of the Red Cross Institute Building, and Harold Molter, educational director.

MASSACHUSETTS

Housing Service Created.—Health Commissioner Woodward of Boston announces that a group of sanitary inspectors in the service of the health department has been detailed for the more efficient and economical execution of the housing laws that are enforcable by the health department. The city at present is divided into twenty-nine districts, and a sanitary inspector is assigned to each who is to be responsible for the enforcement within his district of all statutes, regulations and orders pertaining to sanitation, the housing regulations being only incidental to his work. Under the proposed plan a larger district will be assigned to each inspector, who is to look after only housing conditions. The housing service will have to do particularly with the location, plan, structural condition and number of occupants of buildings so far as these features affect the health of the occupants, and a program of work will be laid down to correct as rapidly as possible objectionable housing conditions. The work will tend to define the needs of the city as to additional housing legislation.

MINNESOTA

Personal.—Dr. Cornelius Williams, St. Paul, is reported to be critically ill in St. Luke's Hospital with septicemia.——Dr. Ignatius J. Murphy, St. Paul, for five years field secretary of the Minnesota Public Health Association, and editor of the *Minnesota Health Journal,* has located at Aitkin.

Red River Valley Physicians Meet.—The quarterly meeting of the Red River Valley Medical Society was held in Crookston, December 27. Influenza was the chief subject of discussion. Dr. Franklin M. Dryden, Crookston, was elected president, Dr. Olaf Ed. Bratrud, Warren, secretary, and Dr. Arthur A. Kahala, Crookston, treasurer.

Southern Minnesota Association to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held in Mankato, January 20 and 21, under the presidency of Dr. Melvin S. Henderson, Rochester. The annual banquet will be held on the evening of the first day and on this occasion the presidential address will be delivered, on "Fractures Considered as Potential Deformities." Dr. William J. Mayo, Rochester, will speak on "Some of the Hospitals in London with Special Reference to the Surgical Treatment of Fistula-in-ano as Perfected at St. Mark's." The annual business meeting will be held on the morning of the second day and will be immediately followed by the scientific program.

NEW YORK

New Hospital Recommended for West Point.—Col. William H. Haskin, M.D., U. S. Army, at a hearing before the House Military Affairs Committee, December 31, recommended that $465,000 be appropriated for a new hospital at West Point.

Personal.—In the suits brought against Dr. Corden T. Graham, Rochester, by Mr. and Mrs. Giuseppe De Prima, for damages said to have been sustained from roentgen-ray burns while undergoing examination, decision is said to have been filed affirming judgments for $2,000 and $1,000, respectively, against the defendant.——Dr. William H. Murray, Albany, has been reappointed postmaster of Albany for a period of four years.——Dr. Frederick R. Smith, Rochester, has been elected president of the New York Motor Federation convention.

New Officers.—The following officers of county medical societies have recently been elected:

Erie County: president, Dr. James E. King; vice presidents, Drs. Earl P. Lothrop and Arthur G. Bennett; secretary, Dr. Franklin C. Gram (reelected for the twenty-fifth consecutive term), and treasurer, Dr. Albert T. Lytle, all of Buffalo.

Albany County: president, Dr. Charles H. Moore, Albany; vice president, Dr. William B. Sabin, Watervliet; secretary, Dr. Percival W. Harrig, Albany, and treasurer, Dr. Joseph A. Cox, Albany.

Rensselear County: president, Dr. Christopher J. Patterson; vice president, Dr. William J. Fleming; secretary, William Quirk, Jr., and treasurer, Dr. Russell F. Benson, all of Troy.

Utica Medical Library Association: president, Dr. Harry T. Remmer, Utica; vice president, Dr. William O. Weiskotten; secretary, Dr. John Gromann; treasurer, Dr. Arthur M. Johnston, and librarian, Dr. Frederick T. Owens.

New Governor on Public Health Measures.—In his inaugural address, Gov. Alfred E. Smith clearly defined his policy in reference to social and health legislation. He recommends the passage of legislation to lift labor out of the category of commodities or articles of commerce and urges legislation that will afford adequate protection to women and children. He recommends the establishment of a minimal wage commission who shall serve without compensation and who shall have the power to fix the living wage to be paid to women and minors. He recommends that the compensation law be amended in keeping with the constitutional provision, to the end that occupational diseases and injuries may be subject to its provisions. Governor Smith strongly urges the enactment of a health insurance law, which he believes will result in greater precautions being taken to prevent illness and disease, and to eliminate the consequent waste to the state therefrom. He believes also that proper provision should be made for maternity insurance and points out that other countries are far ahead of us in this respect.

New York City

Harvey Society Lecture.—The second lecture of the current series of the Harvey Society Lectures, to be delivered, January 11, at the New York Academy of Medicine, is by Col. Eugene R. Whitmore, M. C., U. S. Army, on "Infectious Diseases in the Army."

Personal.—The report in the issue of December 21, that Dr. Sigmund Pollitzer had sustained a fracture of the skull in an automobile accident, was incorrect. Dr. Pollitzer states that he was in an accident and received a severe concussion of the brain, and was taken unconscious to the hospital, but did not have a fracture of the skull, and reported for duty three days after the accident.——Dr. Saul J. Selkin and Isaac Glassman were slashed with a razor by an insane patient, December 25.

Slight Recrudescence of Influenza.—The number of new cases of influenza reported to the health department has increased considerably during the week ending January 4, there being about double the number of cases reported for that date as compared with the daily average of the past four weeks. Health Commissioner Copeland had prophesied that there would be an increase in influenza and pneumonia following the arrival of the United States Navy and the attendant celebration, owing to the conditions of crowding and exposure that inevitably accompany such an occasion.

New Officers.—At the annual meeting of the Medical Society of the County of Kings, December 17, Dr. Stephen H. Lutz was elected president; Drs. Robert L. Moorhead and John A. Lee, vice presidents; Dr. Charles E. Scofield, secretary, and Dr. Alfred Bell, treasurer, all of Brooklyn.——At the annual meeting of the Queens-Nassau County Medical Society, December 17, Dr. L. Howard Moss, Richmond Hill, was elected president; Dr. Arthur D. Jaques, Lynbrook, was elected vice president, and Dr. James S. Cooley, Mineola, secretary-treasurer for many years, was reelected.——At the annual meeting of the Richmond County Medical Society, Dr. John D. Lucey was elected president; Dr. Daniel P. MacGuire, vice president; Dr. John S. Ware, secretary, and Dr. Edward D. Wisely, treasurer, all of Staten Island.

Annual Reports of New York Academy of Medicine.—At the stated meeting of the New York Academy of Medicine, January 2, Dr. Walter B. James, who has been president for four years, retired and Dr. George David Stewart assumed the duties of the office. The annual reports of officers, committees, etc., for the year 1918 were presented. The report of the president showed that in spite of the war conditions the usual activities of the academy had gone on without interruption. An attendance at the meetings that was quite equal to that of other years testified to a growing interest in them on the part of the medical public. The project for building a fireproof addition to the building on the adjoining lot has necessarily been held in abeyance during the war. The plans, however, have been drawn and are now being completed in detail. In spite of the fact that members absent in the national service have largely availed themselves of the opportunity of having their dues remitted and of certain unusual expenses, the academy has been able to continue its activities throughout the year without a deficit. The Academy Extension Fund is not quite adequate to build and equip the proposed new structure and it is hoped that Fellows will subscribe sufficient additional funds to make this possible.

OHIO

Academies Elect Officers.—At the annual meeting of the Columbus Academy of Medicine, December 20, Dr. John H. J. Upham was elected president, Dr. William F. Whitten, vice president, and Dr. James A. Beer, secretary-treasurer.——At the annual meeting of the Cleveland Academy of Medicine, Dr. Frank Oakley was elected president, and Dr. Jacob E. Tuckerman, vice president.

Personal.—Dr. Thurman R. Fletcher, Columbus, Vinton County, has been appointed chief medical examiner of the State Industrial Commission.——Dr. Frank H. Lord, assistant physician of the Oxford Retreat, has resigned and taken charge of a sanatorium near Dayton.——Dr. Hugh H. Dorr, Grove City, fourth assistant medical examiner, has been promoted to first assistant medical examiner of the State Industrial Commission.——Dr. Guy H. Williams, Columbus, for fifteen years physician and assistant superintendent of the Columbus State Hospital, has been appointed superintendent of the Cleveland State Hospital where he has been acting superintendent.——Dr. George W. Martin, Portsmouth, who has been critically ill with pneumonia, is reported to be improving.——Drs. George H. Schomaker, Cincinnati, Mark E. Bowles, Charles A. Stammel, and Estella M. R. Caldwell have qualified for permanent appointment as district physicians of the health department.

OKLAHOMA

Personal.—Capt. Henry D. Shankle, M. C., U. S. Army, Oklahoma City, sustained serious injuries, November 19, by the overturning of his automobile.

Advocates Sanatoriums.—Dr. John W. Duke, Guthrie, state health commissioner, has endorsed the plan of establishing sanatoriums for tuberculosis patients in Oklahoma.

New Officers.—At the annual meeting of the Pontotoc County Medical Society the following officers were elected: president, Dr. Leander M. Overton, Fitzhugh; vice president, Dr. Bedford F. Sullivan, Ada, and secretary-treasurer, Dr. Samuel P. Ross, Ada.

PENNSYLVANIA

Cited for Bravery.—Miss Cora S. Moyer, Fleetwood, a nurse in the American Army overseas, has been cited for bravery under fire by General Pershing.

Personal.—Dr. Edward F. White, Reading, has been appointed resident physician at the Hamburg Sanatorium.——Dr. Carl H. Metzger, Altoona, has been reappointed police surgeon and medical member of the Civil Service Examining Board of Altoona, to succeed Dr. Louis E. McKee, who has resigned.——Dr. Jacob I. Roe has been elected president and Dr. Peter P. Mayock, secretary of the Medical Advisory Board of Wilkes-Barre Contagious Disease Hospital.

Philadelphia

Public Health Service Work.—At the meeting of the College of Physicians, December 27, Senior Surgeon Charles E. Banks, U. S. P. H. S., Washington, D. C., read a paper entitled, "Reconstruction Program of the Public Health Service."

Personal.—Major Charles H. Frazier, who was commissioned a major at the beginning of the war in the Medical Corps in the Army and who was attached to the Cape May Hospital as chief of the surgical division, has been appointed general consultant in neurologic surgery to the Surgeon-General of the Army.——Dr. George E. deSchweinitz has been appointed general consultant in ophthalmologic surgery to the Surgeon-General.——Dr. A. J. Ellis, associate professor of pathology in Jefferson Medical College, will go to Siam to organize the department of pathology in the Royal University at Bangkok.——Dr. H. C. Wood, Jr., is reported to be ill at the University Hospital with typhoid fever.——Dr. Dorothy Child, Germantown, has returned after several months' service with the pediatric unit in France.

GENERAL

New Member of National Board.—At a recent meeting of the National Board of Medical Examiners, Dr. William H. Welch, Baltimore, was elected a member of the board, succeeding Dr. Henry Sewall, Denver, resigned.

Western Surgeons Elect Officers.—At the twenty-eighth annual meeting of the Western Surgical Association, held in Chicago, December 21, the following officers were elected: Dr. Roland Hill, St. Louis, president; Drs. Emil G. Beck, Chicago, and George N. Kreider, Springfield, Ill., vice presidents; Dr. Arthur T. Mann, Minneapolis, secretary-treasurer, and Drs. Jabez N. Jackson, Kansas City, Mo.; Edward Evans, LaCrosse, Wis., and Edward S. Judd, Rochester, Minn., members of the executive council. The next meeting of the association will be held in Kansas City, Mo.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian, and Sloane Maternity hospitals, New York City, each $10,000; Post-Graduate, Manhattan Eye and Ear, Women's and St. Andrew's hospitals, New York City, each $5,000 by the will of James P. Steers.

French government institutions for blind and helpless, crippled soldiers, $96,500; Asylum of St. Vincent de Paul, Ecole maternelle, Paris, and the New York Hospital, each $3,820 by the will of Jean de Bourbis.

Philadelphia Home for Incurables, Women's Medical College of Pennsylvania, Women's Hospital, Charity Hospital, Philadelphia, and Norristown, Pa., Industrial Home for Blind Women, each $10,000 by the will of Mary H. Wood.

Associated Charities, Children's Free Hospital, and Marquette University, Milwaukee, each one third of the income accruing from $75,000 worth of stock in the Cudahy Company, by the will of Miss Helen Cudahy.

Staten Island Hospital, $5,000 by the will of Stacey Richmond.

FOREIGN

Deaths in the Profession Abroad.—Dr. **Rafael Rubirosa,** a graduate in medicine of the University of San Domingo, who had been taking postgraduate work in New York City; aged 32; died in the Manhattan State Hospital, December 6, from chronic endocarditis.

Nobel Prize in Physics.—This prize, for 1917, has been awarded by the Swedish Academy to Prof. C. G. Barkla, professor of natural philosophy in the University of Edinburgh, for his work on roentgen rays and secondary rays. The prize in physics for 1918, and that in chemistry for 1917 and 1918, have been reserved.

Medical Victims of Influenza in Spain.—The *Medicina Ibera* of Madrid states that 200 physicians have died from influenza during the recent epidemic of influenza in Spain. It cites a notice in the daily press to the effect that the authorities have appropriated a sum of money to be distributed among the widows and orphans of these medical victims of the epidemic. The sum appropriated is 2,000 pesetas; that is at the rate of 10 pesetas per family. A Spanish peseta is equivalent to the French franc, not quite 20 cents. Our exchange comments on this that the lack of organization and union among physicians is responsible for the profession being held in such slight esteem in political circles as is evidenced by this appropriation.

Spain Gives Traveling Scholarships.—The *Revista de medicina y cirugia prácticas* states that among this year's traveling scholarships recently announced by the official *Gaceta* at Madrid is one to Dr. J. Bosch, for a year's study at the University of Berne, Switzerland, on the physiology and pathology of nutrition. Another is for Dr. J. M. Riezgo, for six months' study of biologic chemistry at a Swiss university, and another for Dr. V. M. Nogueras, for six months' study of artificial appliances and reeducation of the maimed, in France and Switzerland. The other scholarships go to recent graduates, for six or eight months' study in France or Switzerland, of the effects of war wounds of the eyes, or the pathology of the endocrine system, or a year in Switzerland for study of the action of the radium and roentgen rays on the ovaries and gynecologic tumors.

Prizes Awarded by the French Académie de Médecine.—At the annual meeting, Dec. 10, 1918, the Académie de Médecine had fifty-seven prizes to distribute but, on account of the war, no competing articles had been presented for fifteen of the prizes and none deemed worthy of the prize for eleven others. The remaining thirty-one prizes were awarded to physicians of Paris or other French cities with the exception of one prize part of which was given to Messerli of Lausanne, Switzerland, for his systematic records of the physical measurements of Swiss soldiers. The Monbinne prize, given for the best report of a scientific mission, was divided between a French colonial medical officer and Dr. J. N. Roy, physician at the Hotel Dieu of Montreal, for his work on the eye affections in natives of Africa suffering from syphilis or trypanosomiasis. Honorable mention was accorded a work by a medical woman, Dr. Condat, on leukocytolysis. Honorable mention was also accorded a work on the changes in the bones in leprosy, by Dr. J. A. Honey of New Haven. The money prizes awarded ranged from 300 to 7,200 francs each. The Académie has held no elections during the war, but at this meeting it elected sixteen regular members to fill vacancies in the sections, and elected Clemenceau member at large, with M. Gross of Nancy as national associate member, and Dr. W. S. Thayer of Baltimore as foreign associate. During the year just closed, the Académie lost five regular members, including Pozzi and Gaucher; two national associate members, Ehrmann and Grasset; with four national corresponding members, including Régis, Maurel and Jeannel, and three foreign corresponding members, Istrati of Bucharest, Revilliod of Geneva, and Guareschi of Turin.

Influenza in South Africa.—Newspapers from Cape Town and Johannesburg, South Africa, covering the latter part of October describe the influenza situation as extremely serious. Although the proposal to close up all places of business was defeated at a special meeting of the Chamber of Commerce of Cape Town, yet the town was practically at a standstill as far as business was concerned and the streets were deserted. The number of cases of influenza was large and the deaths were so many that the bodies could not be taken care of. Many were collected on the beach awaiting burial. Physicians, nurses and volunteer aids were overworked, and many patients died without having any attention of any sort. Nurses would visit houses among the natives and perhaps find several dead with others ill, none of them having had any care. Everything possible was done by the authorities to relieve the situation. Vaccines were prepared and administered to the extent of the supply that could be manufactured. Depots or aid stations were established throughout the municipal area both at Cape Town and at Johannesburg, where the situation was about the same as at the former place. These were the headquarters for the efforts at controlling the situation in the different sections. The proportion of serious cases was large, and at Johannesburg the mortality was about 30 per cent. At one time forty-two of the nurses at the Johannesburg Hospital were ill, as also a number of the members of the staff of physicians. Dr. R. P. MacKenzie, superintendent of the hospital, speaking of the disease, said: "The majority of medical men in Johannesburg have seen nothing so terrible as the present epidemic. In 1890 Edinburgh was seized with an epidemic of Russian influenza, but it was a mere fleabite compared to what Johannesberg is going through today. We are not yet attacked with pneumonic plague, but I admit that clinically the symptoms of many victims are exactly the same as those of pneumonic plague; but we have not got the plague. Our slum areas and the poor condition of the unfortunates living in them have combined to give the disease such impetus as to assume plague proportions. Other cities and towns in South Africa also reported great prevalence of the disease."

MEXICO LETTER

Mexico City, Dec. 29, 1918.

Interchange of Professors

With the object of drawing closer the relations of a scientific character between both countries, the Department of Education of the Committee of Public Information of the City of New York has applied to the Mexican embassy at Washington suggesting the advantages of organizing a series of lectures on educational topics by United States professors coming to Mexico for the purpose, and by Mexican professors going to the United States, so that by this means the culture of the two republics would be diffused abroad to that extent. The proposition of the New York committee has been officially transmitted to the rector of the National University here, and it is hoped that he will regard the idea with favor and aid in its realization.

The Epidemic of Influenza

Information has been received to the effect that the epidemic of influenza is causing grave ravages in the states of Sonora and Sinaloa on the Pacific coast. The port of Mazatlan has been scourged worst by the disease. In the state of Chiapas the epidemic has subsided after having caused, it is estimated, 12,000 deaths.

The National Public Health Service

The Departamento de Salubridad has made arrangements to publish a supplement to its official *Boletin* which will appear more frequently than the latter, and will be devoted mainly to reporting the progress realized in the field of chemistry applied in pharmacology and pharmacy in Mexico. This branch of applied chemistry has developed considerably of late owing to the scarcity of drugs previously imported but shut off by the great war.

This same government service is now considering a drastic decree for combating alcoholism, which would materially restrict the manufacture and sale of intoxicating drinks.

Personal

Dr. C. Barajas, director of the Allied review, "Verdun," is seriously ill at present.

Dr. A. G. Figueroa has been appointed director of the National Library, the first establishment of the kind in the Republic.

Spanish Edition of the Journal

So far as I have been able to learn, the news of the early publication of a Spanish edition of The Journal has caused an altogether favorable impression among the physicians of Mexico. Numbers of persons have already subscribed for it. The Journal is much appreciated and read in Mexico, but as unfortunately the number of physicians who can read English is not very large, its circulation has been relatively small. This drawback will be obviated with its publication in Spanish, and it will contribute to mutual advantage toward extending and making more cordial the scientific relations between the physicians of the two neighboring countries.

School for Backward Children

The national school authorities having jurisdiction over the federal district and territories, have added this year to their budget—which is still awaiting the approval of the Chamber of Deputies—an additional 5,000,000 pesos. This is to cover the expense of truant officers, to ensure that all children of school age are attending some institution of learning, and also to found a school for backward and feebleminded children. There has been no provision for a school for these abnormal children before, and the lack of it has been much felt. The only special schools hitherto organized have been those for the blind, the deaf mutes and the children with ringworm.

Quackery in Mexico

With grave injury to the interests of the public, quackery in the city here is flourishing more and more every day as there is no legal restriction whatever to prevent any one that wishes to practice medicine from doing so. The quacks get clients among the ignorant by means of attractive and misleading advertisements in the daily papers. The favorite special fields chosen by these charlatans are syphilology and electrotherapy.

Medical Society

The Sociedad Medica del Hospital General has been recently reorganized. It comprises the medical force of this hospital but for some time the society had lapsed. Dr. Sepúlveda, director of the Beneficencia Publica, has taken the initiative in the resuscitation of the society.

Measures to Prevent Conception

The National Public Health Service, the Departamento de Salubridad, has published a decree prohibiting the sale and advertising of measures designed to prevent conception. The order is based on the grounds that this business is immoral and contrary to the interests of the public. The order is important because hitherto no check has been imposed on the speculators who make a business of manufacturing these so-called specifics, with which they defraud many foolish persons.

The Junta de Beneficencia Privada

This association was founded recently to cope with the epidemic of influenza and, since that need has passed, has continued its work in improving conditions as to hygiene in this city. It proposes to use the remainder of the sum realized by donations from private individuals (the sum to date totals 62,000 pesos), in founding public kitchens for the needy and securing shelter for the poor. The association has recently imported from the United States a quantity of drugs and has been dispensing them at cost price. They were obtained, thanks to facilities afforded by his Excellency, the United States ambassador, Mr. H. P. Fletcher. The president of this charitable Junta is Mr. C. B. Zetina, a progressive manufacturer, who at one time was president of the city council.

Examinations

The partial examinations in the medical school have just been completed, and the students in general made a good showing.

LONDON LETTER

London, Dec. 18, 1918.

The Influenza Epidemic

It has been estimated that in the whole world about 6,000,000 persons have died from influenza during the past twelve weeks. Not since the Black Death has such a plague swept over the world. In India some 3,000,000 deaths have occurred, of which there were 15,000 in Bombay. Delhi, with a population of only 200,000, had 800 deaths a day. In the Punjab, 250,000 persons perished. South Africa also suffered severely. In Cape Town, 2,000 children were left destitute as a result of the disease. Australia sent a ship to Samoa because the disease was affecting 80 per cent. of the natives. The white population could only feed the living and bury the dead. The epidemic seems to have begun in Spain last summer in a mild form with comparatively few deaths, and in that form spread across Europe, reaching London about June. It then spread to America; and while serious accounts were received from there, it had practically disappeared from London in August and September. In October, the second wave appeared with its high mortality from pneumonia, and it reached a climax in November. It slowly declined, and a few cases are still occurring in London.

The Prohibition of Gas Warfare

The presidents of the Royal Colleges of Physicians and Surgeons of England, Scotland and Ireland, Sir Clifford Allbutt, and Sir William Osler have published in the *Times* a joint letter suggesting that the use of poisonous gases in warfare be abolished at the forthcoming peace conference. They point out that their introduction by the Germans was a violation of the principles of morality which had hitherto exercised some control over civilized warfare, as well as a violation of the Hague Convention, to which Germany was a signatory. The Allies had in self defense to retaliate, but now that the need is over, fresh safeguards should be devised to prevent any nation from employing such methods again. They consider gas as condemned for the following reasons: It is an uncontrollable weapon, whose effects cannot be limited to combatants. It is an "unclean" weapon, condemning its victims to death by long-drawn-out torture. It opens the door to infinite possibilities of causing suffering and death, for its further development may well lead to the devising of an agent that will blot out towns, and even nations.

The Medical Examination of Aviators

In the medical examination of aviators it has been found that in some cases men of perfect physique, apparently quite unafflicted with nerves, absolutely failed to make even passable pilots. The discovery led to the formation of a special "medical flight" where such pilots have been able to work under medical supervision, the causes of their failure ascertained, and, wherever possible, remedied by special treatment. During the rough and tumble of 1914, the selection of successful pilots was necessarily a good deal a question of the survival of the fittest. After this stage a careful medical and physical investigation was made of the survivors of that gallant band of pilots who went out with the first five squadrons in 1914. This gave the preliminary data as to the necessary physical qualifications of a successful pilot, which now form the basis of the standard required by the present medical board for all aviation candidates. Later on, and as soon as the exigencies of war permitted, an investigation on similar lines was made as to the characteristic mentality of these pilots, and with the information thus collected the medical flight began its important work. One of the first qualifications required by a good pilot is alertness; this is tested by measuring the reaction time to an electric lamp suddenly switched on. The emotional element is also tested so as to ascertain whether fear has a stimulating or paralyzing effect.

The Profession after the War

In his address to the General Medical Council, the president, Sir Donald MacAlister, referred with pride to the great part performed by the profession at home and abroad in preserving the health of the forces and the people during the struggle. The strain on physicians in civil practice, already severe enough, has been increased by the prevalence of epidemic illness. There is good hope that this strain will speedily be relieved by the release of physicians from military service at the rate of some hundreds every month. The professional committees in Great Britain which, with the guidance of members of the council, have so effectively aided the government in recruiting for the medical services during the war, are cooperating with the authorities in solving the scarcely less difficult problems of demobilization and resettlement. In particular, it has been arranged that the release of teachers in medical schools and hospitals shall have special consideration. The influx of students returned from active service, with a view to the early completion of their professional course, makes it urgent that the sadly depleted staffs of skilled instructors should be reinforced without delay. The number of newly qualified physicians would this year be below the average, notwithstanding the steps taken to recall senior students from the Army to the medical schools. Somewhat tardy measures had been adopted to maintain the supply of senior dental students; but so far the qualified dentists added to the Dentists' Register had been few. The number attending the schools of dentistry with a view to qualification was also very small. The prospect of a considerable addition to the ranks of qualified dentists, plainly required to meet immediate wants, was not encouraging.

The Culminating Brutality

In all the black history of the German method of warfare, nothing has been viler than the reported treatment of sick prisoners. What it is to be hoped is the last example has come to light at Namur on the entry of the Allies. The diet of the sick prisoners there was 4 ounces of black bread a day with coffee in the morning and rice soup at noon, and a teaspoonful of jam every forty-eight hours. Every prisoner was emaciated and suffering from intestinal troubles brought on by the diet. When the Germans had to leave, they made no attempt to hand over the prisoners in hospital to any authority or representative of the Allies; they did not even inform the patients or the civilians that they were going. They merely went away and left the patients alone. There were about a dozen places used as hospitals, the existence of some being unknown to the civilians. These contained about 600 patients. Civilians penetrated into some the first day. At others patients remained absolutely unvisited for forty-eight hours, when, driven by hunger, some who could walk went out into the streets to seek food, and then only did the citizens hear of the situation. When they entered, they found an almost incredible state of affairs. In one institution, six patients lay dead in their beds. The condition of filth and the evidences of neglect were loathsome, the places being littered with dirty bandages and refuse of all sorts, so that the atmosphere was simply terrible. It was five days after the Germans had left the hospitals that the first British medical officers arrived, and ten days before there was anything like a proper supply of invalids' food and medical necessaries. Meanwhile, residents of the town did everything possible.

PARIS LETTER

Paris, Dec. 5, 1918.

Nervous Complications in Present Epidemic of Influenza

At a recent meeting of the Société de neurologie, Dr. G. Roussy called attention to the infrequency of complications of the central and peripheral nervous system during the present epidemic of influenza, even in those sections where the disease was of considerable severity and where, since the beginning of the summer, cases of this kind were sought with care. Only four such cases have been encountered: (1) A case of polyneuritis, of the motor type with paraplegia predominating, involving all four extremities, appearing on the fifth day of the disease. (2) A case of polyneuritis involving all four extremities, appearing during convalescence from influenza of the bronchopneumonic type. (3) A case of neuritis of the incomplete sensory-motor type involving the legs only, occurring during convalescence from a mild attack of influenza. (4) A case of apoplexy with left-sided hemiplegia occurring during the course of pulmonary influenza; at the present time, six months after its onset, the hemiplegia is gradually subsiding.

The findings obtained from lumbar puncture in these four cases are worthy of note. In each case there was hyperalbuminosis and a clear lymphocytosis; sometimes as many as 80 or 100 lymphocytes per field were seen, showing that the meninges were involved in the infectious process. Dr. Roussy stated that either he was particularly fortunate in not having a larger number of nervous system complications among his cases, or the nervous system was not specially exposed to involvement in this epidemic of influenza. Dr. Souques confirmed Dr. Roussy's observations as to the infrequency of this complication in the present epidemic. Among 400 cases observed by him there was not one case of this complication.

Dr. E. de Massary stated that a meningeal reaction consisting of a slight lymphocytosis occurs frequently in influenza even when there is no involvement of the nervous system.

Interallied Conference of Scientific Academies

The Conférence interalliée des Académies des sciences des pays de l'Entente has concluded its work. It was resolved to appoint an executive committee of five members whose function it shall be to study in detail the various questions discussed by the delegates to the conference. The committee consists of M. Emile Picard, permanent secretary of the Académie des Sciences of France, president; M. Schuster, secretary of the Royal Society of London, secretary; M. Hale, member of the Academy of Science of Washington; M. Lecointe, member of the Académie royale des Sciences of Belgium, and M. Vito Volterra, member of the Italian Académie royale des Lincei. It has been decided to establish several international scientific associations. Scientists of Germany, Austria-Hungary, Turkey and Bulgaria will be denied membership in them.

Demobilization of Medical Officers

Inasmuch as the university centers are endeavoring to resume their activity, all assistant professors and hospital physicians now in service will be returned to their faculties. Beginning January first, the medical officers will be recalled from the front according to the time spent with units in active service. On the other hand, physicians of all classes up to the class of 1894 (44 years of age) inclusive, (class of mobilization, and class fixed by the number of dependent children), will be returned to civil life and will continue to draw pay, thus enabling them to build up a practice. The physicians of the invaded regions will be returned to their place of residence at once, and means are now being devised to supply them with such instruments as they may require as part of their war indemnity.

Permanent American Red Cross Committee in Paris

The work undertaken by the American Red Cross in France is too important to be allowed to cease with the end of the war. Therefore, a permanent bureau will be established in Paris which will be under the direction of the parent organization in New York. It is the first branch established in continental Europe. The Paris bureau has full control of the work of the departments of the Seine and Seine-et-Oise. Major Gurney E. Newlin, who was president of the Los Angeles branch, is president and director of the Paris committee.

Clemenceau Sanatorium

Acting on the suggestion of M. Mesureur, directeur de l'Assistance publique, the conseil de surveillance for that department has decided to give to the tuberculosis sanatorium at Bicêtre, containing 400 beds, the name of Sanatorium Clemenceau in honor of the premier who was provisional intern in the hospice de Bicêtre in 1863.

Emergency Transportation for Physicians

In order to ensure immediate medical attendance for the sick during the prevailing epidemic of influenza, the Paris municipal council appropriated 50,000 francs to defray the expense of transportation of physicians by means of autotaxis for a period of two months. These twenty-six taxis will be available for service each night from 8 p. m. to 4 a. m.

Personal

The *Association générale des médecins de France* has elected the premier, M. Clemenceau, honorary president of the association. Such action has never before been taken by the association.

M. Clemenceau was also unanimously elected a member of the Académie de médecine, section des associés libres. M. Clemenceau presented his doctorate thesis on a histologic subject in 1865. He practiced medicine for several years, at Rochester, New York, and in Paris. [His medical career was outlined in The Journal, Dec. 8, 1917, p. 1976.]

Dr. Sieur, médecin inspecteur général de l'armée, was elected to membership in the Académie de médecine in the section on surgical pathology.

Marriages

Clayton Gregg Woodhull, Capt., M. C., U. S. Army, Decker, Mich., on duty at camp hospital, Air Service Depot, Morrison, Va., to Miss Winifred Susan Flaherty, C. N., U. S. Army, N. C., at Newport News, Va., December 21.

Jesse Hughes Maybry, Lieut., M. C., U. S. Army, Newport News, Va., to Miss Eleanor T. Cook of Blackstone, Va., December 21.

Lewis Paddock Addoms to Miss Martha Wentworth Suffren, both of Flatbush, Brooklyn, December 26.

Jacob White to Dr. Frances Florence Cohen, both of New York City, December 24.

Deaths

George W. McCafferty, Jr. ⊕ St. Michael, Pa.; University of Pennsylvania, Philadelphia, 1893; aged 48; appointed second assistant physician at the Norristown State Hospital in 1894, first assistant physician in 1897 and chief physician to 1910; in 1909 he was made assistant physician in Kirkbrides, the Pennsylvania Hospital for the Insane, Philadelphia, and in charge of the department of women, where he remained until 1912, when he was appointed assistant physician for the State Hospital for the Criminal Insane, Far View, Wayne County, leaving this position to take up the duties of superintendent of the Somerset Hospital for the Insane, Somerset, in 1916; formerly secretary, treasurer, and reporter of the Wayne County Medical Society; died, December 13, at the Windber Hospital, Windber, Pa., after an operation for appendicitis.

Donald Herbert Currie ⊕ Surgeon, U. S. P. H. S., Boston; Washington University, St. Louis, 1897; aged 42; a member of the Association of Military Surgeons of the United States; who entered the service as assistant surgeon in 1899 was made passed assistant surgeon in 1904, and surgeon in 1912; from 1909 to 1917 on duty in the Hawaiian Islands, where his research work regarding leprosy in the government leper station on the island of Molokai, attracted the attention of medical men throughout the world; representative of the United States at the International Leprosy Congress in Bergen, Norway, in 1909; since 1917 port physician at Boston; died at his home in Brookline, Mass., December 23, from pneumonia following influenza.

George H. Hockett ⊕ Capt., M. C., U. S. Army, Anderson, Ind.; College of Medicine and Surgery (Physiomedico), Chicago, 1910; aged 35; who entered the First Medical Officers' Training Camp at Fort Benjamin Harrison, Ind., and then served at Fort Oglethorpe, Ga., and went overseas in May, 1918, and was placed in charge of the Three Hundred and Thirty-Fourth Sanitary Train, Fourth Division, and participated in the fighting at Chateau Thierry, Soissons, Cambrai, and Argonne Forest, and was proceeding toward Germany with the American Army of Occupation; died, December 1, from heart disease.

Edward Linthicum, Evansville, Ind.; Long Island College Hospital, Brooklyn, 1865; aged 74; at one time a member of the Indiana State Medical Association; formerly professor of clinical surgery in Evansville Medical Colleges; surgeon to the Evansville City Hospital; visiting surgeon and once president of the medical staff of the Deaconess Home and Hospital, and consulting surgeon to St. Mary's Hospital; who served as a medical officer in the war between Serbia and Bulgaria in 1885-1886; died in the Deaconess Hospital, Evansville, December 27, from cerebral hemorrhage.

William Emmet Purviance ⊕ Lieut.-Col., M. C., U. S. Army (retired), Los Angeles; Jefferson Medical College, 1889; aged 53; a member of the Association of Military Surgeons of the United States; who entered the Medical Corps of the Army in 1892, and was retired on account of disability in line of duty, Aug. 6, 1912, was returned to the active list at his own request in 1917, and placed on recruit- ing duty in Los Angeles; is reported to have committed suicide at his home in Los Angeles.

Henry Skillmore Atkins, St. Louis; Beaumont Hospital Medical College, St. Louis, 1887; aged 51; a member of the Missouri State Medical Association; formerly first assistant physician at the Kentucky Insane Asylum, chief assistant at St. John's Hospital, St. Louis, and for eight years superin- tendent of the St. Louis Asylum for the Insane; founder of the Glenwood Sanitarium, Glendale, Mo.; died in St. Luke's Hospital, St. Louis, December 25.

James M. Scott, St. Louis; Washington University, St. Louis, 1853; aged 89; a member of the Missouri State Med- ical Association, and for eight years president of the St. Louis Medical Society; formerly a member of the faculty of his alma mater; and also a professor in the St. Louis Col- lege of Physicians and Surgeons; for two terms a member of the city board of health; died at his home, December 22, from pneumonia.

John Van Doren Bedinger ⊕ Capt., M. C., U. S. Army, Anchorage, Ky.; Johns Hopkins University, Baltimore, 1911; aged 32; associate professor of pediatrics in the University of Louisville from 1913 to 1917; who entered the Army in June, 1917, and served at Fort Oglethorpe, Ga., and Camp Shelby, Hattiesburg, Miss., before going abroad; died in Liverpool, England, October 20, from pneumonia.

Samuel F. Brothers ⊕ Brooklyn; College of Physicians and Surgeons in the City of New York, 1890; aged 54; editor of the *Medico-Pharmaceutical Journal* from 1898 to 1905; also a graduate in pharmacy; founder of *American Medicine;* gynecologist to Zion Hospital and Dispensary, Metropolitan Hospital and Dispensary and Beth Israel Dispensary; died at his home, December 18, from anemia.

Reuben A. Adams, Rochester, N. Y.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1868; aged 77; a veteran of the Civil War; president of the American Institute of Homeopathy in 1916; twice medical director of the Department of New York G. A. R., and in 1915 elected surgeon-general of the G. A. R.; city physician of Rochester in 1874; died at his home, December 9.

Alvin Myers Strusse, Guatemala City, Guatemala, Central America; Jefferson Medical College, 1914; aged 28; who had been doing research work in Guatemala for the Rockefeller Institute, and was president of the local institution in Guatemala City and chief of the supreme council of salubrity; died in the Quirigua Hospital, December 18, from pneumonia following influenza.

William Adam Lieser ⊕ Lieut., M. C., U. S. Army, Celina, Ohio; formerly of Fort Recovery, Ohio; Eclectic Medical Institute, Cincinnati, 1914; aged 34; a specialist on diseases of the eye, ear, nose and throat; who was among the first to enter the service after war was declared; is reported to have died, recently, in France, from wounds received in action.

Benjamin Isaac Coman Buckland, Fleming, N. Y.; University of Michigan, Ann Arbor, 1884; aged 61; a member of the Medical Society of the State of New York, and twice president of the Cayuga County Medical Society; formerly health officer of Cayuga County; died at the home of his brother-in-law in Fleming, December 24.

Carl C. Elmer Boyer, Chicago; Loyola University, Chicago, 1916; aged 32; a member of the staff of the Columbus Hospital; physical director for the north and south parks in Chicago for six years, and in Oil City, Pa., for two years; died at the Columbus Hospital, December 5, from pneumonia following influenza.

Emile L. DeLanney ⊕ Major, M. C., U. S. Army, Omaha; John A. Creighton Medical College, Omaha, 1901; aged 46; assistant professor of the practice of medicine in his alma mater; chief of the medical service at Fort Des Moines, Iowa; died in the post hospital, Fort Des Moines, December 23, from influenza.

William T. Johnson ⊕ Pawnee City, Okla.; Eclectic Medical Institute, Cincinnati, 1885; aged 58; president of the state department of health; formerly professor of diseases of the chest in Lincoln (Neb.) Medical College; was found dead from heart disease in his automobile near Pawnee City, December 18.

John S. Berry, Fort Worth, Texas; University of Louisville, Ky., 1882; aged 60; formerly of Waxahachie, Texas; at one time a member of the State Medical Association of Texas; who was struck by an automobile near his home, December 19, died a few minutes later in St. Joseph's Infirmary.

Wilford Andrew Fair ⊕ Lieut., M. C., U. S. Army, Pleasant Hill, Mo.; University Medical College of Kansas City, Mo., 1909; aged 35; was killed in France, October 6, during the fight in the Argonne Forest, while attempting to aid a brother officer, who had been wounded and was exposed to machine gun fire.

Clarence Alden Macomber ⊕ Lieut., M. C., U. S. Army, New Sharon, Me.; Tufts College Medical School, Boston, 1915; aged 42; on duty at the base hospital, Aviation Field No. 4, Garden City, L. I., was killed in a collision between a run- away team and the ambulance in which he was riding, Decem- ber 20.

Ralph Thomas Saunders ⊕ Lieut., M. C., U. S. Army, Sandusky, Ohio; Ohio State University, Columbus, 1917; aged 25; formerly assistant surgeon at the Ohio State Sol- diers' and Sailors' Home, Sandusky; died in Camp Eustis, Va., October 11, from bronchial pneumonia following influ- enza.

Harrison Briggs Webster ⊕ Major, M. C., U. S. Army, Castine, Me.; Harvard Medical School, 1909; aged 34; who entered the service in 1917, and was on duty with Ambulance Company No. 14, at Fort Benjamin Harrison, Ind., and later went overseas; was killed in action in France, October 12.

Claud Huston Case ⊕ Kansas City, Kan.; University of Kansas, Lawrence and Rosedale, 1907; aged 44; a specialist in diseases of the eye, ear, nose and throat; a member of the staff of Bethany Hospital, Kansas City, Kan.; died in that institution, October 22, from pneumonia following influenza.

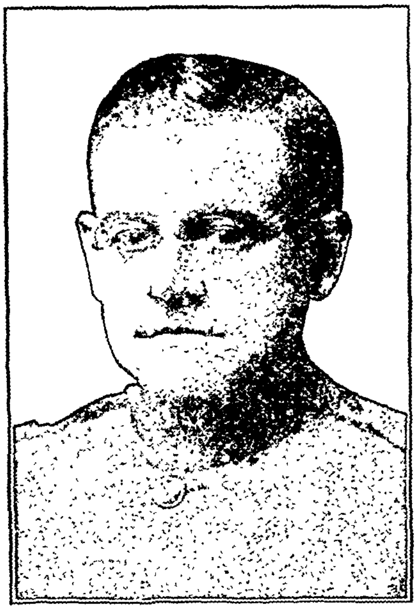
Edward E. Evans, Mercer, Mo.; Missouri Medical College, St. Louis, 1898; aged 50; a member of the Missouri State Medical Association; formerly assistant superintendent of State Hospital No. 1, Fulton; died in Memorial Hospital, Rosedale, Kan., December 12, from pernicious anemia.

Henry Samuel Tanner, San Diego, Calif.; Eclectic Medical Institute, Cincinnati, 1859; aged 87; who first came into notice in the late seventies as an advocate of fasting for the relief of disease conditions of various kinds; died in the San Diego County Hospital, San Diego, December 28.

David D. Bowen, Adams, Mass.; Berkshire Medical College, Pittsfield, Mass., 1861; aged 80; who after his graduation entered the woolen business, and later was in the coal and wood business at Maple Grove; died at the home of his daughter in Adams, December 5, from acute gastritis.

Julian Chew Blakistone, Washington, D. C.; Georgetown University, Washington, D. C., 1906; aged 37; a member of the Medical Society of the District of Columbia; a specialist in urology, and professor of dermatology in his alma mater; died at his home, December 13, from osteosarcoma.

Died in the Service
IN FRANCE
Major Harrison B. Webster, M. C.,
U. S. Army, 1884-1918



Died in the Service
IN FRANCE
Capt. William F. Guilfoyle, M. C.,
U. S. Army, 1882-1918
(See The Journal, Dec. 21, p. 2092)

Died in the Service
IN FRANCE
Lieut. Davis King Summers, M. C.,
U. S. Army, 1888-1019
(See The Journal, last week, p. 59)

Horace Robert Burns ⊕ Denver; Gross Medical College, Denver, 1896; aged 49; a member of the American Academy of Ophthalmology and Oto-Laryngology; a specialist on diseases of the eye, ear, nose and throat; died at his home, October 18, from pneumonia following influenza.

George Buol ⊕ **Lieut., M. C., U. S. Army**, Ravenna, Neb.; University of Nebraska, Omaha, 1910; aged 32; who had been on duty at Camp Funston, Kan., was instantly killed, December 21, when his automobile was struck by a Burlington train at a grade crossing at Streetwater, Neb.

Benjamin Franklin Grove, Baltimore; University of Maryland, Baltimore, 1877; aged 66; at one time a member of the Medical and Chirurgical Faculty of Maryland; a specialist on diseases of the ear and throat; died at his home, December 26, from the effects of a fall in October.

Joseph R. Bluxome, San Francisco; New York University, New York City, 1857; aged 87; attending physician to the DeMilt Dispensary, New York City, in 1865 and 1866, and visiting physician to St. Luke's Hospital, San Francisco, in 1871; died at his home, December 27.

William F. Thomason, Waco, Texas; Medical College of Georgia, Augusta, 1859; aged 79; a Confederate veteran, who served as assistant surgeon in Herrie's Hospital, Atlanta, Ga., during the Civil War, and was afterward a druggist; died at his home, December 21.

William Cleveland Reese ⊕ **Lieut., M. C., U. S. Army**, Wilkes-Barre, Pa.; University of Pennsylvania, Philadelphia, 1910; aged 34; a member of the staff of the Wilkes-Barre City Hospital; died in New York City, October 20, from pneumonia following influenza.

Paul Lee Cocke ⊕ **Capt., M. C., U. S. Army**, Birmingham, Ala.; University of Virginia, Charlottesville, 1899; aged 43; on duty with the American Expeditionary Forces in France; died in Paris, July 27, from concussion of the brain following an automobile accident.

A. Eugene Heimbach, Renovo, Pa.; Hahnemann Medical College, Philadelphia, 1890; aged 55; who underwent operation in the Womans' Homeopathic Hospital, Philadelphia, December 6; died in that institution, December 16, from carcinoma of the stomach.

Harry Everett Gribbin ⊕ Rockland, Me.; Bowdoin Medical College, Brunswick and Portland, Me., 1900; aged 43; a Fellow of the American Academy of Medicine, and a specialist in diseases of the eye, ear, nose and throat; died, recently, from pneumonia.

Max Meyer, New York City; Eclectic Medical College of the City of New York, 1897; aged 64; a practitioner since 1876; professor of chemistry and toxicology and lecturer on histology and pathology in his alma mater; died at his home, December 23.

William Townsend Van Vredenburgh, New Brighton, Staten Island, N. Y.; College of Physicians and Surgeons in the City of New York, 1881; aged 62; died in the Home for Incurables, New York City, December 22, from cerebral hemorrhage.

John P. Hussey, Providence, R. I.; Georgetown University, Washington, D. C., 1903; at one time a member of the Rhode Island Medical Society; died at his home, about December 18.

Edward Embree ⊕ Winterset, Iowa; State University of Iowa, Iowa City, 1889; aged 54; died at his home, November 13, from chronic interstitial nephritis.

William T. Rolston, Cape Girardeau, Mo.; Hahnemann Medical College, 1876; aged 64; died at his home, December 13, from chronic interstitial nephritis.

Herve Gagne, Montreal, Que.; Laval University, Montreal, 1918; aged 30; died in October from pneumonia following influenza.

Thomas Levington Bayne Vaught, Campeche, Mexico; a nongraduate practitioner; aged 36; died, October 2, from pellagra.

Eugene L. Reed ⊕ Atlantic City, N. J.; Jefferson Medical College, 1884; aged 59; died in a sanatorium, December 16.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE QUALITY OF THE MARKET SUPPLY OF PROCAINE

Report of the Council on Pharmacy and Chemistry

The following report has been authorized for publication by the Council. W. A. Puckner, Secretary.

In accordance with its announcement (The Journal, Sept. 22, 1917, p. 1018) to report from time to time on the quality of American-made synthetic drugs, an examination of the market supply of procaine has been made. As explained at the time, the control of synthetic drugs, which, as a result of the war, are now made in this country, is in the furtherance of American industry, for the protection of the public, and in the interest of physicians. Since the manufacture of this class of drugs is to some extent experimental in this country, it is due physicians and the public that they be given the protection which will come from an investigation of the market supply. In view of the occasional reports of accidents with local anesthetics, an examination of the market supply of procaine was deemed particularly desirable. Hence, the A. M. A. Chemical Laboratory was asked to report if the product now offered for sale was satisfactory from a chemical standpoint while the aid of the Pharmacologic Laboratory of Cornell University Medical School was invoked to determine if any of the product was unduly toxic.

Procaine, which chemically is the mono-hydrochloride of Para-amino-benzoyldiethyl-amino-ethanol, is the nonproprietary name selected by the Federal Trade Commission as the official designation for the drug previously known under the proprietary name "novocaine." Before the war procaine was obtainable in this country only through the Farbwerke Hoechst Co., the American representative of the German establishment, Farbwerke, vorm, Meister, Lucius and Bruening, under the name "novocaine." This monopoly on "novocaine" was exercised by virtue of United States patent No. 812,554, which was issued to Alfred Einhorn, Munich, Germany, assignor to Farbwerke, vorm, Meister, Lucius and Bruening, Hoechst a. M., in 1906. With the outbreak of hostilities, Congress passed the Trading with the Enemy Act, and under this, the Federal Trade Commission took charge of the novocaine patent with a view of securing the production of this product in the United States. To ensure an adequate supply of the drug, the Federal Trade Commission on recommendation of the Committee on Synthetic Drugs of the National Research Council, in addition to issuing a license to the Farbwerke Hoechst Company (which license was later transferred to the H. A. Metz Laboratories) granted authority to the Abbott Laboratories and the Rector Chemical Company to manufacture it under the U. S. patent after specimens submitted by these firms had been found satisfactory in the Association's Laboratory and at the Cornell Pharmacologic Laboratory.

After the three licenses had been issued, the Council examined specimens which each of these firms submitted as representing the market supply. These were found satisfactory and the preparations being marketed in conformity with its rules, the Council admitted procaine-Abbott, procaine-Farbwerke (novocaine), and procaine-Rector to New and Nonofficial Remedies as brands of procaine.

To obtain specimens representing the market supply, orders for the three brands of procaine were recently placed with pharmaceutical firms in New York, Baltimore and San Francisco. The Baltimore and San Francisco firms supplied specimens of procaine-novocaine brand and procaine-Rector brand but reported that the Abbott brand was not procurable. The New York correspondent was able to supply procaine-Rector only. As the entire output of the Abbott Laboratories was stated to go to the Government, specimens of this product were obtained through the Surgeon-General of the Army from the General Purchasing Office, Medical Dept., U. S. Army. The following specimens were obtained and examined:

1. *Procaine-Abbott, 6 specimens:* The first specimen bore no serial number but the five later specimens were designated respectively, No. 89999, No. 89998, No. 89997, No. 89996, and No. 810995 representing batches from which shipments are to be made on contracts placed by the General Purchasing Office, Medical Department, U. S. Army, with the Abbott Laboratories of Chicago.

2. *Procaine-novocaine brand, 4 specimens:* These were designated respectively, A56, A57, A63, and A67. The first two specimens were labeled "Manufactured by the Farbwerke-Hoechst Co. at the H. A. Metz Laboratories." The third specimen (not in original container) was labeled "H. A. Metz Laboratories" and the fourth was marked "Manufactured by the H. A. Metz Laboratories."

3. *Procaine-Rector, 3 specimens:* Each bore the statement "Manufactured by the Rector Chemical Company" but had no "lot number."

Report of the A. M. A. Chemical Laboratory

To determine the quality of procaine now offered to the medical profession, the several specimens of each brand which had been purchased were submitted to the tests employed when specimens were previously examined for the Subcommittee on Synthetic Drugs of the National Research Council, and for the Council on Pharmacy and Chemistry. These tests were essentially those of New and Nonofficial Remedies and of the German Pharmacopoeia; it is, of course, not in the U. S. Pharmacopoeia. They require that the specimens shall respond to tests of identity for procaine (para-amino-benzoyldiethyl-amino-ethanol-hydrochloride); shall be odorless and colorless crystals or crystalline powder; shall melt at 153 to 155 C.;[1] shall be free from metallic impurities, and readily carbonizable matter, and on incineration leave not more than 0.1 per cent. ash.

In the accompanying table the results of the examination are given. For comparison the findings for the specimens examined previously are included.

From this examination it appears that all the specimens of procaine received complied satisfactorily with all tests of identity and purity with the following exceptions: (1) One specimen of procaine-Abbott had a melting point slightly below the permitted range; however, the last five specimens had the required melting point. (2) Five specimens of procaine-Abbott and the last three specimens of procaine-Rector were not entirely colorless, but had a yellow or light brown tinge.

Report from the Cornell Pharmacologic Laboratory

The following is the report of the toxicity determinations carried out on the specimens of procaine above enumerated, in the Pharmacologic Laboratory of Cornell University, Medical School, by Dr. R. A. Hatcher with the assistance of Dr. C. Eggleston.

Because of the serious or even fatal accidents occasionally reported from the use of local anesthetics (The Journal, Jan. 26, 1918, p. 258), it was thought prudent to determine that specimens of procaine should not be unduly toxic under normal conditions. Such tests have been made for the Subcommittee on Synthetic Drugs when the issuance of licenses for the manufacture was under consideration and have been a prerequisite to the acceptance for New and Nonofficial Remedies.

Twenty-five milligrams of drug per kilogram weight of cat in 5 per cent. solution is injected intravenously, and after 15 minutes, the same amount is again given in the same way. The dose administered in the test corresponds to over 1.5 gm. of drug for an adult of average weight administered intravenously, by which route the toxicity of the drug is far greater (approximately ten times as great) than by the subcutaneous method ordinarily used in clinical practice.

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[1] U. S. patent number 812,554—the novocain patent—declares that the salt melts at 156 C. Evidently based on this, both the German Pharmacopoeia and New and Nonofficial Remedies give this melting point. Two specimens of German made novocain obtained from our files, stated to be manufactured by Farbwerke-Hoechst vorm. Meister, Lucius, and Bruening, Hoechst a.M. were found to melt respectively between 154 and 155 C. and between 153.5 and 154.5 C. when the melting point was determined according to the directions of the U. S. Pharmacopoeia, 9th revision. The various specimens examined at that time melted between 153 and 155 C. and it was decided to permit this range.

When the several market specimens of procaine were tested in this way, the animals so tested succumbed in no case. These results indicate that none of the specimens is to be considered dangerous when used in ordinary dosage for normal individuals. (Since the accidents attending the use of procaine depend on abnormal conditions not understood at present, no responsibility for the safety of the drug can be assumed as a result of these experiments.)

Several specimens of procaine-Rector and five of procaine-Abbott are decidedly brownish in color even when finely powdered and yield yellowish solutions.[1] All the earlier specimens from the Abbott Laboratories and from the Rector Chemical Company were beautifully white and crystalline.

Brand	Date Received	Color	Melting Point	Ash
Procain (Abbott), from Committee on Synthetic Drugs....	12/21/17	White	154-155 C.	None
Procain (Abbott), submitted to Council P. and C.	1/29/18	White	153.5-154.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army................	8/31/18	White	152.5-153.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89999.....	9/30/18	Slight brownish tint	153-154.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89998.....	9/30/18	Slight brownish tint	153-154.5 C.	0.005%
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89997.....	10/ 8/18	Slight brownish tint	153-154 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89996.....	11/ 4/18	Slight brownish tint	153.5-154.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 810995....	11/ 4/18	Slight brownish tint	153.5-154.5 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council....	10/24/17	White	153-154 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council....	12/10/17	White	153-154.5 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council, market spec. "A56"............	8/ 9/18	White	153.5-154.5 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council, market spec. "A57"............	9/ 9/18	White	153.5-154.5 C.	None
Procain (H. A. Metz Lab.), market spec. "A63"............	8/23/18	White	153-154 C.	None
Procain (H. A. Metz Lab.), market spec. "A67"............	9/23/18	White	153-154 C.	0.018%
Procain (Rector), from Com. on Synthetic Drugs............	12/18/17	White	153-154.5 C.	None
Procain (Rector), market spec.	8/20/18	Slight brownish tint	153-155 C.	None
Procain (Rector), market spec.	8/23/18	Slight brownish tint	153-155 C.	None
Procain (Rector), market spec.	8/23/18	Slight brownish tint	153-154.5 C.	None

The following tests were also made: About 0.01 to 0.02 gm. procaine was added to about 10 to 15 c.c. distilled water contained in a test tube, and this placed in a bath of boiling water for one hour. The solutions were then cooled and examined. After standing over night, they were examined again. No deposit of any sort and no change of color could be detected in any case.

When the matter of the discolored specimens of procaine was referred to the Rector Chemical Company for explanation, the firm wrote that some months ago for a short time for some unexplainable reason its procaine was slightly yellowish in color, but that every batch was carefully tested and found to answer all chemical requirements. The firm stated that the product which it has sent out for some time past has been white and yields a colorless solution.

To a like inquiry the Abbott Laboratories replied that the five samples which were found discolored were products manufactured by the Rector Chemical Company and represented goods which it had purchased to assist in filling delayed orders, because the firm had found itself unable to keep pace with the demand on account of delay in securing needed apparatus. The firm submitted protocols to show that the procaine made by it, by Rector and by Metz were of equal toxicity.

So far as the evidence goes, there is nothing to indicate that the yellowish or brownish colored specimens of procaine are seriously impure. On the contrary, the compliance with the chemical and toxicologic tests indicates that the color is due to an insignificant trace of some colored substance produced in the manufacturing process. In view of this, the Council considers the use of the discolored product to be justified in the present emergency, although it would urge that for the future the supply of procaine should be free from color and also comply to the tests of purity. It makes this request in the interest of the medical and dental professions, which use the drug, and also in a desire that in the manufacture of synthetic drugs, the United States shall occupy a high place.

Correspondence

"THE ROENTGENOLOGIC STUDY OF EMPYEMA CAVITIES"

To the Editor:—In his article on "The Roentgenologic Study of Empyema Cavities" (The Journal, December 14, p. 1975), Dr. Franklin A. Stevens advocates an oil emulsion of bismuth subnitrate for the outlining of empyema cavities, as a substitute for bismuth paste. His reason for employing the oil mixture in preference to the petrolatum as given is that the oil mixture will fill all the crevices of the cavity and prevent bismuth absorption. Wishing to verify his experience, I desired to determine whether the oil and bismuth and powdered acacia will make a stable homogeneous mixture. I therefore made up the mixture as described and left it in the test tube overnight. In the morning I found all the bismuth at the bottom of the test tube and the pure transparent oil on top. Again the test tube filled with a 10 per cent. bismuth paste shows it to remain homogeneous.

This, in my opinion, makes the mixture of oil and bismuth not only unsuitable for the purpose but also dangerous, because the pure bismuth might separate and gravitate into the deepest recess between the dome of the diaphragm and the pleura and make it difficult to remove and in time cause absorption, with its toxic effects. If the oil and bismuth mixture were injected into tortuous sinuses, at the end of which were abscess cavities, the bismuth would remain in the abscess cavities, while the oil would run out and cause very serious complications.

Bismuth poisoning is not eliminated by substituting oil for petrolatum; but we have demonstrated that the accidental occurrence of bismuth poisoning can be prevented by proper technic in employing the bismuth paste.

In order that the proper preparation of the bismuth paste may be better known, as it is used at the present time, I give herewith the formula for its preparation:

The materials required are:
1. Bismuth subnitrate, chemically pure.
2. Yellow petrolatum (best grade).
3. White wax.
4. A large porcelain mixing bowl.
5. A spoon.
6. A large enamel jar, with a cover, for storing the paste.
7. Several small enamel jars with covers for liquefying paste at the time of use.
8. Adhesive straps for the covers of the jars, to keep moisture and dirt from contaminating the paste.
9. Water bath for heating the paste.
10. Sterile rubber gloves, towels, etc., for aseptic technic.

Bismuth paste is a 10 per cent. mixture, one part of bismuth subnitrate to nine parts of petrolatum, with a small amount of white wax (2 ounces to 10 pounds of paste). The mixing bowls, jars and spoon are sterilized. The petrolatum is sterilized for twenty minutes in the original container in the autoclave. The bismuth subnitrate is sterile when it comes from the manufacturer and so does not have to be resterilized. The mixing bowls and jars must be absolutely dry, as the slightest amount of water produces a curdling of the paste and it is then useless.

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[1] A specimen of procaine recently sent the Council by the Metz Laboratories had a faint tinge of yellow, but, like the discolored Rector and Abbott specimens, complied with the identity and purity tests for procaine.

The bismuth subnitrate is poured into the mixing bowl and all lumps smoothed out with the spoon. A sufficient amount of petrolatum, which is still in a liquefied condition from the sterilizing, is slowly poured into the bismuth, to make a stiff paste. This mixture is then stirred for an hour until it is a smooth, bright, yellow, homogeneous paste. This is the most important step in the process, and if it is not carried out carefully, the paste will not be homogeneous.

To the balance of the nine parts of the liquefied petrolatum a small amount of white wax, which has been heated to liquefaction, is added (2 ounces to 10 pounds), and then this mixture is gradually added to the thick paste, being stirred constantly. The resulting product should be a light yellow, smooth, homogeneous paste, which, on cooling, becomes congealed without the precipitation of the bismuth.

From time to time, small amounts of this paste (from 8 to 10 ounces) are transferred to small jars in which the paste is liquefied and from which it is used. These jars should not be more than half full, and great care should be taken not to get any water into the paste while heating it.

The syringes that are used are both glass and metal, the barrel holding from one-half ounce to 2 ounces of paste. These syringes have different shaped points and nozzles, according to the demands of the case. The syringes are sterilized and kept in sterile towels until they are to be used, when they are filled with the liquefied paste.

Emil G. Beck, M.D., Chicago.

"FOCAL INFECTIONS OF THE EYE FROM THE INTESTINAL TRACT"

To the Editor:—Apropos of Dr. J. G. Dwyer's article in The Journal, December 21, on "Focal Infections of the Eye from the Intestinal Tract," I recently had a case that illustrates the influence of gastro-intestinal toxemia in certain eye conditions:

A girl, aged 18 years, consulted me in the middle of April, 1918, because of typical serous iritis of the right eye for which she had been under treatment two weeks at a local clinic. There were by this time slight iritic synechiae and some corneal infiltration. Examination of the heart and lungs elicited nothing abnormal. The teeth were in good condition. The patient had slightly buried tonsils; there was no exudate either on the surface or in the crypts, nor was there a history of frequent attacks of tonsillitis. The nose as well as the neighboring sinus cavities were evidently normal, at least clinically so. There was no history of rheumatism or any joint affection. Menstruation was normal. In fact, outside of slight paleness due to the patient's rather sedentary occupation, that of a stenographer and bookkeeper, the girl had evidently enjoyed good health until the present attack. She was put at once on the routine antiiritic treatment (calomel for the bowels, atropin in oil locally, acetylsalicylic acid internally, dark coquilles, hot applications, bland diet, etc.) and told to report to a local hospital for a Wassermann test, which was negative. A von Pirquet test yielded the same result. Under this treatment the eye seemed to be getting along quite well, as the patient, luckily, was in a position to give up her work and followed religiously the instructions given her, when she reported, May 27, with the unmistakable signs of a beginning iritis in the other eye. On inquiry she admitted that on the previous day she had had a heavy meal of meat and tomatoes, and later in the day had partaken rather freely of strawberries. A goodly dose of calomel with sodium bicarbonate seemed to put her on the right track again, and though the attack of iritis in this eye could not be prevented, the condition was under our complete control until a month later, when another gastro-intestinal indiscretion caused a slight exacerbation in both eyes, and retarded the treatment to some extent. A little later there developed a mild degree of optic neuritis, with blurring of the outlines of the disk and slight swelling of the nerve head, without, however, in any way affecting the vision or the fields; by this time the deposits on the posterior surface of the cornea were almost completely absorbed. The recovery now continued uninterruptedly, and by the middle of August the patient was able to return to her work. A month later the outlines of the disk began to emerge, and the disk gradually took on its natural form and color. Potassium iodid was given during the last two months of treatment. I might observe that while under my care the patient had two marked attacks of urticaria.

The question in my mind is: Can a case of this kind really be called a focal infection, in the common acceptation of the term, or does it more properly belong to that class of disturbances, with the iris as the locus minoris resistentiae, caused by protein sensitization of ingested food? In either case the question opens up a wide vista of scientific investigation, on the results of which depends the solution of many puzzling pathologic phenomena.

Alexander Rovinsky, M.D., New York.

TREATMENT OF INSOMNIA

To the Editor:—I have read with interest Dr. Mautz' letter on insomnia in The Journal of December 14. In my own case (I am of a nervous temperament) business affairs have often produced a sleepless night. I have tried counting, deep breathing, etc., (and have avoided drugs) without success. I have also tried getting up and walking around for a while, only to resume my busy thoughts on returning to the pillow. Suddenly an inspiration: Get out of bed; become interested in some humerous story, such as one of Mark Twain's; get to laughing; go to bed with a good giggle on: Morpheus takes a grip on the throat of business, and there you are—asleep.

S. C. Priest, M.D., Newark, Ohio.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COMMISSIONS IN THE RESERVE CORPS, INACTIVE

To the Editor:—A number of physicians who volunteered their services during the war received notices that they had been recommended for commissions, and that commissions and orders would be issued through the Adjutant-General's Office. In many cases the commissions and orders were not received and, of course, will not be received since the armistice has been signed. Most of these physicians had fully prepared themselves to report for duty at a greater or lesser sacrifice. They no doubt will be very grateful to have the government recognize their willingness to assist in the emergency. Would it be reasonable to expect the government to issue the delayed commissions, and immediately on acceptance, to muster out the recipients? This mark of appreciation would entail very little extra work, and no expense.

W. L. R.

Answer.—We are informed that the War Department will probably issue commissions in the Reserve Corps, inactive, to those medical men whose applications for appointment had received the final approval of the Surgeon-General on or before Nov. 11, 1918. There may, of course, be some delay in the issuing of these appointments. If nothing is heard from the War Department within five or six weeks, the physician might well write directly to the Adjutant-General's Office, detailing the circumstances and requesting the issuing of the commission.

LITHIUM CARBONATE—PHENOL CRYSTALS

To the Editor:—1. Is not lithine carbonate, as mentioned in Current Medical Literature, Nov. 9, 1913, p. 1620, Abstract 109, lithium carbonate? 2. What is glacial phenol described in Abstract 45, p. 1616?

F. M. P.

Answer.—1. The Spanish term used is "carbonato de litina" and in the French summary given with the article the chemical is designated "carbonate de lithine." Both of these terms are the equivalent of lithium carbonate, which should have been the English word used.

2. The French term "acide phénique neigeux" should have been translated "phenol crystals."

Book Notices

TRENCH FEVER. Report of Commission of the Medical Research Committee, American Red Cross. Members of Commission: Richard P. Strong, Major, M. R. C.; Homer F. Swift, Major, M. R. C.; Eugene L. Opie, Major, M. R. C.; Ward J. MacNeal, Captain, M. R. C.; Walter Baetjer, Captain, M. R. C.; A. M. Pappenheimer, Captain, M. R C.; A. D. Peacock, Captain, R. A. M. C. (T) and David Rapport, First Lieutenant, M. C. Prepared for publication by Richard P. Strong. Cloth. Pp. 446, with illustrations. New York: Oxford University Press, 1918.

This commission consists of the following members of the Medical Corps. Majors Richard P. Strong, Homer F. Swift and Eugene L. Opie; Captains Ward J. MacNeal, Walter Baetjer, A. M. Pappenheimer and A. D. Peacock, and Lieut. David Rapport. A report of the investigations and conclusions has just been issued in a large volume. This will be of value to others pursuing investigations on the subject.

In carrying out the investigations, since the disease is not transmissible to animals, it was necessary to secure the assistance of volunteers, and eighty-two American soldiers, after having the conditions of the experiment fully explained to them, volunteered their services. The work was carried out at a stationary hospital of the British Expeditionary Forces, the laboratory apparatus and supplies with funds being furnished through the American Red Cross. The researches are extensive, including examination and inoculation of the volunteers and the study of numerous soldiers subject to the disease. The most important facts demonstrated by the investigations are that:

1. Trench fever is a specific, infectious disease; it is not a modified form of typhoid or paratyphoid fever, and is not related, from an etiologic standpoint, to these diseases.
2. The organism causing the disease is a resistant filtrable virus.
3. The virus causing trench fever is present particularly in the plasma of the blood of trench fever patients, and such plasma will produce the disease on inoculation into healthy individuals.
4. The disease is transmitted naturally by the louse *Pediculus humanus* Linn., var. *corporis,* and this is the important and common means of transmission. The louse may transmit the disease by its bite alone, the usual manner of infection, or the disease may be produced artificially by scarifying the skin and rubbing in a small amount of the infected louse excrement.
5. A man may be entirely free from lice at the time he develops trench fever, the louse that infected him having left him some time previously as its host, and the louse need only remain on the individual for a short period of time in order to infect him.
6. The virus of trench fever is also sometimes present in the urine of trench fever patients and occasionally in the sputum, and the disease may be produced in man by the introduction of the virus in the urine or sputum through the scarified or otherwise abraded skin.
7. Since the urine and sometimes the sputum of trench fever patients are infective, these should be sterilized in order to avoid the possibility of accidental infection from them.
8. In order to prevent trench fever or limit its spread, and thus save man power for the armies, greater efforts must be made to keep soldiers in general from infestation with lice.

Usually the complete study of any infectious disease, from its first description as a clinical entity to the discovery of its etiology, pathology and control, requires many years, sometimes many generations. Here in a single controlled research a disease has been thoroughly studied and the method of control discovered during three or four years.

The Enterprising Pharmaceutical House and Its "Remedies."—Let an enterprising pharmaceutical house bring forward a remedy for a certain disease and advertise it in a pseudoscientific way, and the profession will not fail to adopt and use it until another advertised remedy displaces it. It does not matter whether it be a revived old remedy, a new one, or an old one dressed in a new garb; whether it be a chemical or an animal extract, a heterogeneous vaccine, the profession is always ready to welcome the new medicinal recruit and give it a place in its multitudinous armamentarium. Wherein lies the fault? It is due, partly, to our blind devotion to our old-time drugs, which should have been relegated to the attic years ago, and, partly, to our fickleness created by overenterprising pharmaceutical houses. —Ravitch and Steinberg, *Kentucky Medical Journal.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

KANSAS: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.

MISSOURI: St. Louis, Jan. 28-30. Sec., Dr. G. H. Jones, State House, Jefferson City.

NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

VERMONT: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

WYOMING: Moorcroft, Feb. 12-14. Sec., Dr. H. E. McCallum, Laramie.

Medical Schools and Medical Students in India

A recent number of the *Indian Medical Gazette* contains a list of five medical "colleges" having 2,491 students enrolled and fourteen medical "schools" with 2,869 students. There are, therefore, nineteen medical teaching institutions having altogether 5,360 students, an average of 282 students each. The figures in detail are as follows:

MEDICAL COLLEGES	Men	Women	Total
Grant Medical College, Bombay	653	52	705
Madras Medical College	416	32	448
Lahore Medical College	225	7	232
Calcutta Medical College	946	19	965
King George's Medical College, Lucknow	136	5	141
Totals	2,376	115	2,491
MEDICAL SCHOOLS			
Campbell School, Calcutta	372	18	390
Dacca School	278	2	280
Royapuram School, Madras	269	11	280
Prince of Wales School, Tanjore	132	..	132
Vizagapatam School	112	..	112
Hyderabad School	137	..	137
Poona School	168	..	168
Ahmedabad School	198	2	200
Agra School	557	61	618
Ludhiana School (Women)	...	21	21
Burma School	93	7	100
Temple School, Patna	131	..	131*
Cuttack School	146	5	151
Berry White School, Assam	149	..	149
Totals	2,742	127	2,869
Totals both Colleges and Schools	5,118	242	5,360

* Includes 96 compounders.

Reports in the files of the Council on Medical Education show that the "colleges" named in the first list are of a standard recognized by the Conjoint Board of London, but the "schools" are not so accredited.

The article states that the accommodations for students in the medical teaching institutions are very inadequate, and that the question of increasing these accommodations is receiving serious attention by all local governments. It is common knowledge that one of the greatest needs in India—as in China—is of physicians having a knowledge of and who practice scientific medicine.

Massachusetts July Examination

Dr. W. P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 9-11, 1918. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 56 candidates examined, 40, including 1 nongraduate and 13 osteopaths, passed, and 16, including 10 osteopaths, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University	(1918)	82.9
College of Physicians and Surgeons, Baltimore	(1902)	75
Johns Hopkins University	(1918)	83.4

Boston University	(1918)	77.6
College of Physicians and Surgeons, Boston	(1917)	75
Harvard University (1918) 80, 80.3, 80.4, 81.2, 83.8, 84.6.		
Middlesex College of Med. and Surgery	(1918)*	76.5, 81.1
Tufts College Med. School (1916) 79.5; (1917) 80.1;	(1918)	75, 75, 75.1, 80.5, 81.2.
University of Michigan Medical School	(1916)	79
University and Bellevue Hospital Med. Coll.	(1917)	80.6
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1911)	82.1
University of West Tennessee	(1916)	75
University of Vermont	(1918)	84
McGill University	(1918)	83.1
FAILED		
College of Phys. and Surg., Boston.... (1915) 68.5;	(1916)	65.5, 66.5
Middlesex College of Medicine and Surgery	(1918)*	60
Tufts College Medical School	(1918)	72.3
University of Berlin	(1903)	58.1

* Graduation not verified.

Dr. Bowers also reports that 5 candidates were licensed at the *special examinations held* for War Service, June 11-12, July 30-31, and Aug. 8, 1918. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Harvard University (1917) 86;	(1918)	79.7, 82.2
Tufts College Medical School	(1918)	78.3
University of Vermont	(1911)	79.2

Idaho October Examination

Dr. Ray H. Fisher, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, Oct. 1-2, 1918. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Eleven candidates took the physician's and surgeon's examination, including 2 osteopaths, all of whom passed. *Seven candidates were licensed through reciprocity.* The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
State University of Iowa Coll. of Homeo. Med.	(1889)	76
Louisville Medical College	(1894)	75
University of Michigan Medical School	(1891)	78
University Medical College of K. C.*	(1897)	80
University of Buffalo	(1899)	75
Western Reserve University	(1918)	84
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1917)	77
University of Tennessee	(1894)	75
University of Texas	(1910)	80

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado	(1916)	Utah
George Washington University	(1916)	Washington
Drake University	(1907)	Washington
Baltimore University	(1903)	New Mexico
Michigan College of Medicine and Surgery	(1904)	Utah
Missouri Medical College	(1882)	Utah
University of Oregon	(1910)	Oregon

Michigan October Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 8-10, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. The following colleges were represented:

Dr. Harison also reports that 14 candidates were licensed through reciprocity from Sept. 3 *to and including* Nov. 20, 1918. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Johns Hopkins University	(1918)	87.8
University of Michigan Medical School	(1918)	86.8
University of Michigan Homeo. Med. School	(1918)	86.1

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett College of Eclectic Med. and Surg.	(1898)	Illinois
Hahnemann Med. Coll. and Hosp. of Chicago	(1910)	Illinois
Northwestern University	(1895)	Illinois
University of Illinois	(1916)	Illinois
Kansas Medical College	(1899)	Missouri
Johns Hopkins University	(1917)	Maryland
University of Michigan Medical School	(1885)	Illinois
	(1900)	Mississippi
Pulte Medical College	(1882)	Ohio
Medico-Chirurgical College of Philadelphia	(1912)	Penna.
University of Pennsylvania	(1905)	Penna.
Vanderbilt University	(1913)	Tennessee
University of Vermont	(1914)	Virginia
Western University	(1896)	Missouri

Medicolegal

Diagnosing Is Practicing Medicine—Chiropractor

(State v. Rolph (Minn.), 167 N. W. R. 553)

The Supreme Court of Minnesota, in affirming an order denying the defendant, a chiropractor, a new trial after she had been convicted of practicing medicine without a license, in violation of Section 4981 of the General Statutes of Minnesota of 1913, holds that the act of a person who styles himself a doctor, *in* receiving a patient who has applied to him for medical attention, and examining such person and diagnosing his ailment or disease and recommending an operation as treatment therefor, *is practicing medicine within* the meaning of the Minnesota statute prohibiting the practice thereof without a license, though he prescribes no drug and administers no specific treatment to the patient. The court says that the science of diagnosing human diseases and human ailments has come to be a distinct branch or department of the medical profession; the diagnostician *limiting his efforts* to a discovery of the disease or ailment from which the patient may be suffering, its character and location, leaving the treatment thereof to some other physician or surgeon. This is a matter of common knowledge. And it requires no discussion or argument to demonstrate that the physician who thus applies his learning and energies *is performing a highly important duty of the profession,* and is engaged in the practice thereof, though he prescribes no drug and administers no specific treatment. If a physician so limiting his services is practicing medicine, of which there can be no doubt, then in the case at bar the question whether the defendant, in diagnosing the ailment of the person named in the indictment, was likewise engaged was at least a question for the jury.

The evidence disclosed that the defendant was not a licensed physician and surgeon, but was a chiropractor who *for several years* had been practicing at Minneapolis. Some time prior to the date charged *in the indictment* she advertised that she would be at Granite Falls on a given date, to remain for three days to extend relief to those who might apply to her. She held herself out as Dr. B. Elizabeth Rolph, and posters were distributed *announcing* her coming. Cards *with her name as just stated were placed on the doors of* her rooms at the hotel, where she received patients. She was accompanied by a nurse, who assisted in the examination *of persons applying* for help, and in the administration of the treatment given them. They shared equally in the profits. The person named in the indictment, who had been in ill health a long time, was received as a patient, and an examination and diagnosis made by the defendant, assisted by the nurse, disclosed an abdominal tumor, for which the defendant recommended an operation by some competent surgeon. The defendant did not attempt to treat that condition, but did apply to the patient the usual chiropractic treatment, and at the conclusion of all a fee of $2 was charged, and paid. The question was raised whether *the fee* was paid for the preliminary examination or diagnosis or for the treatment; but the dispute was not of serious moment. The examination and treatment constituted one transaction, and whether the fee was exacted for the treatment, excluding the diagnosis, was a fair question of fact. The trial court held it to be immaterial. That the evidence showed that the defendant administered chiropractic treatment to other patients, for the same fee each, was important only as indicating that the examination of the particular patient with the advice of an operation was not an isolated transaction or a neighborly act. The evidence clearly justified the jury in finding the facts substantially as charged in the indictment, and thereon in concluding that the defendant was practicing medicine within the meaning and in violation of the Minnesota statutes.

The indictment was *sufficient,* although the charging part thereof was limited to the specific acts deemed a violation of the statute, and did not charge a commission of the crime *in general terms.*

Damages Allowed Aged Physician for Injuries

(Rust v. Washington Tool & Hardware Co. (Wash.), 172 Pac. R. 846)

The Supreme Court of Washington affirms a judgment for $2,500 damages in favor of the plaintiff, a physician 78 years of age, who was injured by falling into an open elevator shaft in a store where he was making purchases. The court says that an agent of a company that carried a liability policy of insurance on the elevator having been at once summoned after the accident, on payment of $20 obtained from the plaintiff a release and affidavit exonerating the defendant, but there was evidence that the plaintiff did not know what he was doing when he signed them. In deciding against the contention that the award of $2,500 for the injury sustained was excessive, the court says that the evidence showed that the plaintiff, although at the advanced age of 78 years and with but a short expectancy of life, was still practicing his profession as a physician, and was incommoded therein by the condition of his foot, which still caused him pain in its use. At the time of the accident he suffered a dislocation of the kneecap, cuts and bruises about the head and body, and a dislocation of the bones of his foot. He was confined to his bed for several weeks, and compelled for seven or eight months to use crutches. The ankle was stiffened, the bones of the foot had fallen down, there was no arch, and the heel bone was left unaided to sustain his weight. The bones were in such a condition that they must be kept in place by tight bandages of adhesive tape, a heavy iron form must be used in the shoe so as to create an artificial arch, and a cane was necessary to assist in walking. The injury was permanent and one that could not be remedied by an operation. The plaintiff still suffered pain in the use of the foot and whenever the bandages were adjusted. While the award appears to the supreme court large, in view of the advanced age of the plaintiff, the trial court in the exercise of its discretion refused to make a reduction, and the supreme court feels that it would not be warranted, under the circumstances and showing made, in interfering with the award returned by the triers of the fact.

Nature of Action for Death from Abandoning Patient

(Cochran v. Laton (N. H.), 103 Atl. R. 658).

The Supreme Court of New Hampshire, in overruling the defendant's exceptions in this action brought by an administrator and resulting in a verdict for the plaintiff, says that the only question of law raised by the defendant's exceptions to the court's charge, its refusal to charge, and to the admission of evidence as to the deceased's expectation of life was whether an action to recover for a death caused by a physician's abandoning his patient is an action of tort for physical injuries to the person within the meaning of Public Statutes, Chapter 191, Sections 8-13, Section 8 providing in substance that such an action shall survive in the way and to the extent set forth in the following five sections, and the court holds that the action is such a one of tort within the meaning of the statute.

Charitable Institutions Not Within Provisions of Workmen's Compensation Act

(Zoulalian v. New England Sanatorium & Benevolent Association (Mass.), 119 N. E. R. 686)

The Supreme Judicial Court of Massachusetts, in overruling exceptions to a verdict for the defendant, says that this was an action for *personal injuries* received by the plaintiff while in the employ of the defendant and at work on a buzz planer. The defendant was a corporation "for the purpose of founding a hospital or charitable asylum . . . for the care and relief of indigent or other sick or infirm persons . . . and in no manner directly or indirectly for private profit or dividend paying, to any one." It was plain that the objects of the corporation being benevolent and charitable, it must be held to be a valid public charity.

It was the contention of the plaintiff that the defendant was within the provisions of the workmen's compensation act (Statutes of 1911, Chapter 751, and acts in amendment thereof); but the court is unable to agree with this contention. While it is provided by Section 2 of Part 1 that "the provisions of section one shall not apply to actions to recover damages for personal injuries sustained by domestic servants and farm laborers," it does not follow that all other employees who may be injured in the course of their employment are within the terms of the act. Undoubtedly the rules of law declared by this court relating to persons injured while in the employ of charitable institutions may be changed by the legislature, still that such change was made by the workmen's compensation act is not to be inferred in the absence of a plain intention on the part of the legislature to that effect.

It never has been held in this commonwealth that a charitable institution was liable for negligence; on the other hand, it has been expressly held that such institutions are not liable for negligence of their servants or agents. For many years prior to the enactment of the Statute of 1911, Chapter 751, this court in numerous decisions had uniformly held that a charitable institution was not liable for personal injuries due to the negligence of its servants or agents; and it is to be assumed that the legislature had the existing law in mind when the statute was passed. The court is of the opinion that, considering the statute as a whole together with its manifest purpose and the objects sought to be accomplished by it, it was not intended thereby to change the law as it previously stood and include employees of charitable institutions.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, New York

December, 1918, 78, No. 492

1 *Benefits of Stab-Wound Drainage in Pelvic Infections. H. W. Yates.—p. 745.
2 *Does Surgery Ever Cure a Case of Cancer. M. A. Tate.—p. 749.
3 Gall-Bladder Disease and Its Differential Diagnosis. J. F. Erdmann.—p. 752.
4 Acute Gastric Dilatation. Report of Cases. W. J. Gillette.—p. 758.
5 *Sarcoma of Left Ovary in a Child Twenty-Three Months Old. H. E. Hayd.—p. 764.
6 *Case of Abdominal Pregnancy at Term. T. B. Noble.—p. 767.
7 *Rôle of Congenital Colonic Membranes as a Causative Factor in Disease. J. P. Runyan.—p. 770.
8 Case of Pancreatic Cyst in Association with Tubercular Kidney and Intestinal Complications. J. E. Sadlier.—p. 773.
9 Radical Treatment of Cancer of Cervix By Igniextirpation (Werder Operation). E. A. Weiss.—p. 776.
10 *Heart in Pregnancy. L. Burckhardt.—p. 785.
11 Forceps Rotation of Head in Persistent Occipitoposterior Positions. A. H. Bill.—p. 791.
12 Doctor John Bard. G. K. Dickinson.—p. 796.
13 *Study of Pregnancy Toxemia. G. C. Mosher.—p. 803.
14 *Pathologic Conditions of Pelvic Viscera, Result of Induced Abortions Causing Sterilization, Disclosed by Abdominal Section. F. Reder.—p. 823.
15 Irving W. Potter Method of Practicing Version. E. G. Zinke.—p. 829.
16 *Cesarean Section Under Local Anesthesia. W. M. Brown.—p. 836.
17 *Indications for Cesarean Section, Personal Experiences in 109 Cases. A. J. Rongy.—p. 840.
18 *Sterilizing Women When Operating for Tubercular Peritonitis. J. H. Carstens.—p. 849.
19 *Case of Ligation of Inferior Vena Cava. T. B. Noble.—p. 851.

1. Abstracted in The Journal, Oct. 19, 1918, p. 1339.

2. **Does Surgery Ever Cure a Case of Cancer.**—Unless there be evident metastases and the patient can stand operation, Tate believes that it is the physician's duty to mankind to operate without delay, even if there be only a temporary improvement. A hopeless case, where there is no chance for even the prolongation of life, should never be subjected to surgery.

5. Abstracted in The Journal, Oct. 25, 1918, p. 1434.

6. **Abdominal Pregnancy at Term.**—Noble's patient became pregnant in November. Her condition was diagnosed in May. She was laparotomized in August. Pulling aside the margins

of the incision, a very unusual picture was revealed. A very large area of very thin, almost transparent, amniotic sac lay beneath the abdominal wall, through which could plainly be seen the body of the fetus in vigorous activity. The omentum and transverse colon lay covering across the upper zone of the sac to which they were very intimately adherent. There were adhesions between the amniotic sac and the parietal peritoneum in front. It seemed that nature had everywhere utilized the viscera as a substitute for the uterine wall, but had been scrupulously careful to prevent attachment to the unstable abdominal wall in front. An attempt was made to dissect the omentum and transverse colon from the amniotic sac, but the fusion between these substances was so close that rupture of the sac almost immediately took place. Through this rent, a well-developed baby was delivered, crying lustily. The cord was tied and cut and attention then given to the placenta and its membranes. The membrane was adherent to the omentum, transverse colon, coils of intestines and mesentery. The placenta, which was very large, was attached to the mesentery of the sigmoid, the posterior aspect of the broad ligament and the floor of the pelvis. Everywhere the vessels coming to this area were enormously enlarged, many of the venous channels in the mesentery and the broad ligament being as large as a finger. The fetal head had been resting on that portion of the placenta covering the floor of the pelvis. The child weiged 8 pounds and 6 ounces when delivered.

7. Abstracted in The Journal, Oct. 25, 1918, p. 1434.

10. Abstracted in The Journal, Oct. 19, 1918, p. 1340.

13, 14, 16 and 17.—Abstracted in The Journal, Oct. 19, 1918, p. 1339.

18. Abstracted in The Journal, Oct. 25, 1918, p. 1434.

19. **Ligation of Inferior Vena Cava.**—During the removal of a growth lying in front of the lower lumbar vertebrae and behind the peritoneum, the vena cava was torn diagonally across more than half of its circumference. The edges could not be approximated so as to make a safe suture, so Noble ligated above and below with plain catgut. Trusting to the collateral circulation between the iliacs and epigastrics to take care of the return of the blood from the lower extremities, the cut in the posterior peritoneum was closed with a running catgut suture, and the abdomen closed in the usual way without drainage. This patient, a woman, aged 62 years, made an uninterrupted recovery without swelling or edema of the legs, or any untoward symptoms whatever, and has remained in good health since.

American Journal of Medical Sciences, Philadelphia

December, 1918, **156**, No. 6

20 Early Diagnosis of Lead Poisoning, with Special Reference to Abdominal Pain. G. L. Apfelbach.—p. 781.
21 *Opaque Meal vs. Stomach Tube in Diagnosis of Gastric Hypomotility. I. H. Levy.—p. 795.
22 *Aplastic Anemia. Report of Cases. J. P. Schneider.—p. 799.
23 Diagnosis and Treatment of Diaphragmatic Pleurisy. Report of Cases. T. H. Kelly and H. B. Weiss.—p. 808.
24 Fractional Examination of Duodenal Contents. M. Einhorn. —p. 817.
25 Clinical Value of Estimation of Kidney Function. E. H. Mason. —p. 830.
26 Open Pneumothorax. Its Relation to Treatment of Empyema. E. A. Graham and R. D. Bell.—p. 839.
27 *Irritable Heart or Effort Syndrome. T. A. Smith and D. Bovaird. —p. 872.
28 *Lobar Pneumonia Treated with Anti-Pneumococcus Serum at General Hospital No. 6, Fort McPherson, Georgia. C. N. B. Camac.—p. 887.

21. **Diagnosis of Gastric Hypomotility.**—On the basis of clinical observation of 2,600 cases, Levy emphasizes that a rational test for gastric emptying should be based on a meal of ordinary bulk and complexity which the patient should dispose of in seven hours, and that the roentgen-ray test as commonly practiced is not sufficiently delicate for many clinical purposes.

22. **Aplastic Anemia.**—Schneider reports three cases. These three cases occurred in females. Two were definite asthenics, with a 30 gram thymus at the age of 26 in one. One was of normal habits. A definite history of a remote stomatitis or "cold in the head" was absent in two, but present in one. Between this and the fulminating onset with hemorrhagic symptoms there was a period of three and a half months of progressive anemia in this case, and this period of insidiously but rapidly developing anemia was also present in the first two cases. All three were free of clinical evidence of excessive blood destruction: pale sclera, pale urine and small liver and spleen. Viewed in the light of his findings and influenced by the postmortem observations of Engel and Hirschfeld, Schneider feels that proper emphasis should be placed on the fact of toxic marrow destruction, in a reconsideration of the terms by which this disease is known. Aplastic anemia implies congenital defect. Hypoplastic and aregeneratory imply poorly developed marrow readily failing on demand. Schneider suggests that a better term would be toxic paralytic anemia or toxic anhemopoietic anemia.

27. **Irritable Heart or Effort Syndrome.**—The inferences drawn by Smith and Bovaird from a study of fifty cases are summarized as follows: The irritable heart or effort syndrome cases constitute a symptom complex rather than a definite disease. It seems clear there is no definite disease of the heart, and they agree with Lewis that it is highly desirable to avoid any terminology which suggests that there is. The affection is not peculiar to soldiers but often precedes entry into service, though it may be exaggerated or in some cases produced by the active exercise or vicissitudes of the military life. Occupation in civil life is as much a result as a cause of the disturbance, in that men who know their weakness usually adopt an employment suited to it. In the great majority of cases no definite cause of the disorder is ascertainable. When such can be found it is most often an acute infection. Tobacco, alcohol, coffee and tea, though possible causes of aggravation of the symptoms, cannot be regarded as prime factors in the causation. Hyperthyroidism is suggested in some of the cases, but if present it is in a mild degree, and there seems no valid ground for regarding it as more than a contributory factor. In the light of the experience now available in the studies of Da Costa and the British commission it would seem wise to retain many of these patients in the hope of rendering them fit for duty of some kind. In view of their very limited usefulness in foreign service they should not be sent abroad. For the present, at least, the line of treatment must be that of progressive physical training as laid down by the British commission, which, even if it fails to produce satisfactory therapeutic results offers the best means of classifying the men as to their physical ability to perform military service.

28. **Lobar Pneumonia Treated with Antipneumococcus Serum.**—Camac's report deals especially with cases which were diagnosed clinically, bacteriologically and by postmortem as lobar pneumonia due to the pneumococcus cases which show, clinically, consolidation of part or of an entire lobe of the lung and due to the pneumococcus. The amounts of serum administered have varied between 50 c.c. and 600 c.c., with an average of 250 c.c. About 10 per cent. of the cases did not require serum treatment. Few patients came under treatment later than the third or fourth day, and many of them have been treated in the first forty-eight hours. Treatment was begun on the first clinical sign, without waiting for differentiation of type. For this purpose polyvalent serum was used. If the case showed Type I this serum was used, otherwise polyvalent serum was continued. No systematic blood cultures were made, but from the Rockefeller report and from his low mortality, Camac concluded that the early administration of serum prevented the development of or cleared the blood of pneumococcus organisms. In the few cases in which blood cultures were made this conclusion was supported. The rapid recovery of between 50 and 60 per cent. of all patients would indicate that the early use of serum tends to diminish the frequency of the complications. Dichloramin-T in chlorcosane 2 per cent. was used as a throat spray for attendants and with some of the cases. With the measles cases pulmonary complications were less frequent when this treatment was employed. About 50 per cent. of the cases showed signs of serum reaction. These ranged from simple erythema to the extensive urticaria, with general swelling

and joint pains. Some of the severer cases developed after 50 c.c. of serum had been given and others showed no reaction after 400 to 600 c.c. Manifestations appeared from twelve hours to fourteen days after administration. Only two cases showed any alarming features. Only one case presented symptoms of anaphylaxis. This was a case of asthma of unknown cause. Camac says that if more than 250 c.c. of serum are required and the temperature and toxic signs continue, complication by other organism should be suspected; like malaria when treated with quinin the pneumococcus is rapidly overcome by serum. Uncomplicated pneumococcus infection is a comparatively harmless and rarely a fatal condition.

American Journal of Orthopedic Surgery, Boston

October, 1918, **16**, No. 10

29 Excisions of Septic Joints. R. B. Osgood.—p. 323.
30 Orthopedic Surgery in Zone of Advance. K. Emerson.—p. 333.
31 Cody Orthopedic Casual Detachment. E. A. Rich.—p. 340.
32 Orthopedic Treatment of Nerve Lesions. W. G. Erving.—p. 346.
33 Importance of Care in Diagnosis of Back Conditions. J. A. Nutter.
34 Carrel Treatment of War Wounds in 1918. G. W. Hawley.—p. 354.
35 *Atlas and Axis Luxation. C. M. Jacobs.—p. 357.
36 Restoration of Function to Stiff Fingers. M. Langworthy.—p. 365.
37 Cystic and Fibrocystic Disease of Long Bones. W. H. Meyerding.—p. 367.

December, 1918, **16**, No. 12

38 *Effect of Faulty Skeletal Alinement on Eyes.—C. L. Lowman.—p. 459.
39 Distortion of Pelvis from Posture. W. J. Merrill.—p. 492.
40 Carrell-Dakin Treatment at Oxford, England. J. Dunlop.—p. 495.
41 Loose Osteocartilaginous Bodies in Shoulder Joint. M. S. Henderson.—p. 498.

35. **Atlas and Axis Luxation.**—Jacobs reports three cases of dislocation of the atlas not complicated by fracture of the odontoid process of the axis and without the usual history of traumatism.

38. **Effect of Faulty Skeletal Alinement on Eyes.**—Lowman reports the results of his study of forty-six cases which show that spinal malalinement may be causative of active or potential deviations of the eyes, or of pathologic changes, such as glaucoma or sympathetic conjunctivitis.

Archives of Internal Medicine, Chicago

Dec. 15, 1918, **22**, No. 6

42 *Intensive Study of Fifty Cases of Neurocirculatory Asthenia. A. Friedlander.—p. 693.
43 *Excretion of Creatin, Creatinin, and Uric Acid in Acute Febrile Conditions. C. W. McClure.—p. 719.
44 *Comparative Food Value of Protein, Fat and Alcohol in Diabetes Mellitus as Measured by Nitrogen Equilibrium. H. O. Mosenthal and G. A. Harrop, Jr.—p. 750.
45 *Physiology of Stomach. Hunger and Appetite in Pulmonary Tuberculosis. J. Meyer.—p. 759.
46 *Electrocardiogram in Thyroid Disease. P. D. White and J. C. Aub.—p. 766.
47 Renal Function as Measured by Elimination of Fluids, Salt and Nitrogen, and Specific Gravity of Urine. H. O. Mosenthal.—p. 770.
48 *Tachycardia of Unknown Origin. T. B. Barringer, Jr.—p. 805.
49 *Effect of Thymus Gland Injection on Growth and Behavior of Guinea-Pig. D. M. Olkon.—p. 815.

42. **Study of Neurocirculatory Asthenia.**—The authors have studied fifty cases taken from all varieties of military service men deemed unfit for overseas duty and who, in contradistinction to the possible infectious and functional group, were selected because of the constitutional or preenlistment nature of their complaint. Measles, whooping cough and tonsillitis seem to have played the greatest rôles in the past history of these cases. Gonorrhea, pneumonia, scarlet fever, rheumatic arthritis and typhoid are next in frequency, and it is to this group of diseases that 22 per cent. of the patients dated the onset of their condition. Pain in the precordial region was the most frequent symptom complained of. Dyspnea on exertion, paroxysmal palpitation, giddiness, nervousness, weakness, sweating and flushing were next in order of frequency of occurrence. No one symptom predominated. Precordial distress, including dyspnea, pain and palpitation, nervousness, weakness and giddiness characterize the syndrome. Twenty-two per cent. gave a history of a sudden onset and these dated their condition from some previous illness, although this entire group had been more or less nervous and below par since childhood. In 78 per cent. the onset was gradual and the majority of these could give no definite reason or cause for their present condition. In most cases repetition of symptoms occurred with exercise, many others were due to emotional disturbances, and the remainder persisted constantly. Forty-seven out of the fifty cases under observation gave a history of nervousness and cardiac distress previous to induction into military service. Development of symptoms followed scarlet fever in one case and the severe strain of overtraining in two cases.

The majority of this group showed vasomotor instability as evidenced by alternating flushing, pallor, cold, cyanotic, clammy extremities and marked evidence of dermatographia. Fifty-two per cent. were robust and well developed, while 40 per cent. were rather slender, flat chested and showed poor muscular tone. One man had a right side empyema following pneumonia. Examination of the lungs showed no evidence of structural change. No one in the entire group presented evidence of structural cardiac change. The relative cardiac dulness was constantly within normal limits. Twenty-two per cent. had functional apical murmurs, while 28 per cent. had accidental pulmonic systolic murmurs. Two men showed impure first apical sounds, while two had a reduplication of the first sound. The response to exercise was fair in 40 per cent., good in 50 per cent., and poor in 10 per cent. Ten per cent. of the men had an apical systolic thrill palpable after exercise or excitement. A respiratory arrhythmia more marked in some than in others was present in all cases. Twenty per cent. of the cases under observation presented thyroid tumor to a greater or less degree. Ninety per cent. had chronic suppurative tonsillitis; thirty-two per cent. showed deviation of the nasal septum, 20 per cent. chronic sinusitis, while 8 per cent. gave evidence of otitis media. Sixty-six per cent. of the group presented no evidence of oral infection. Thirty-four per cent. gave positive findings of a degree indicating extraction.

All patients denied syphilis, while 24 per cent. admitted gonorrhea. Of the Wassermanns made only two (or 4 per cent.) were returned positive (+ +). No man presented an active gonorrhea. Rectal examination of the prostate showed 10 per cent. to be soft and slightly enlarged, 10 per cent. moderately enlarged, 6 per cent. small and nodular the, remainder normal. Only one case presented a tender and enlarged right seminal vesicle. Smears made of the expressed secretions following prostatic massage were all negative. Routine urine examination failed to reveal any unusual findings. Average blood counts made on the fifty men showed very little of interest. Definite evidence of psychasthenia was obtained in four men, one of whom was a religious fanatic. Two were definite neurasthenics, while four showed positive neurologic findings. Fifty-six per cent. of this group measured normal adult mentality, while 44 per cent. ranged from 8 to 15 years of age.

43. **Creatin Excretion in Fever.**—McClure believes that disturbances in the excretion of creatin, creatinin and uric acid during the febrile period of the acute infectious diseases are, largely, an expression of the effect of toxins on metabolism. These disturbances may continue into the period of convalescence. In the cases studied it was found that the increased excretion of uric acid almost invariably accompanied acute febrile states. It was usually associated either with creatinuria, or with disturbances in the output of creatinin. At times all three phenomena were present. McClure's experimental findings indicate that the loss of uric acid, creatin and creatinin by the body, during acute febrile conditions, is retarded by a high caloric diet rich in carbohydrates.

44. **Protein in Diabetes Mellitus.**—According to Mosenthal and Harrop the addition of an equal number of calories of protein, fat or alcohol to a low caloric carbohydrate-free diet in cases of diabetes mellitus results in the assimilation of considerable amounts of nitrogen when the protein is used, a favorable nitrogen balance in only occasional instances with fat, and no change in the nitrogen equilibrium when

alcohol is given. This would point to a high protein diet as the most advisable low-calory, carbohydrate-free diet by which to conserve the body tissues and furnish a maintenance ration for the diabetic.

45. **Hunger and Appetite in Pulmonary Tuberculosis.**—This study was conducted on six patients with early, moderately advanced, and far advanced pulmonary tuberculosis. None of the patients showed signs of peritoneal or intestinal involvement or had any gastric complaint other than loss of appetite. The outstanding fact in all of Meyer's observations is that contractions and stomach tonus are present. The association in these cases of hunger contractions with absence of hunger sensations suggests the possibility that these contractions are probably not registered in consciousness as such. In these cases the personal factor must be considered. Hunger contractions are present in some individuals, but instead of being recognized by the patient as such they are described as restlessness, headache and other symptoms.

46. **Electrocardiogram in Thyroid Disease.**—Very limited parallelism was found by White and Aub between the basal metabolism and the amplitude of the electrocardiographic T wave in a series of twenty-seven cases of thyroid disease. Auricular fibrillation, including the paroxysmal type, is not uncommon in hyperthyroidism as shown in this series by six out of forty-seven cases of hyperthyroidism (13 per cent.). Paroxysmal auricular flutter was seen in one case. Tachycardia, frequent hypertension and frequent tremor while at rest occurred in the cases of hyperthyroidism although not always parallel to the total metabolism.

48. **Tachycardia of Unknown Origin.**—The reactions to work of fourteen men with tachycardia, between the ages of 21 and 30, were observed by Barringer, on a number of occasions. Five men were classified as belonging to a severe type, chiefly because of their inability to perform amounts of work which normal men are capable of and because the performance of comparatively small amounts of work was accompanied by signs of distress-dyspnea, exhaustion or precordial pain. The pulse rates of the severe type of cases were all higher than normal and all showed greater increases immediately after work than do normal men after the same quantities of work. The pulse rate failed to return to normal inside of 120 seconds in sixteen instances when the heart was overtaxed; five times it returned to normal inside of 120 seconds, although the heart was evidently overtaxed; on nine occasions it failed to return to normal inside of 120 seconds, although the heart was not overtaxed. The curve of the systolic blood pressure showed several interesting anomalies when compared with the curves of normal individuals. "A delayed rise" in pressure following heavy work is an almost invariable finding in normal persons. In these persons, both of the severe and mild types, it is seldom found, and when present does not persist as in normal people. The great majority of these patients, both severe and mild, also show blood pressure curves following increasing amounts of work of what may be called a "diminuendo" type. The curves, instead of mounting higher and higher as they do in normal persons after increasing quantities of work, fall lower and lower. The smallest amount of work was followed by the highest curve and the greatest amount by the lowest curve. The various reactions to work which Barringer describes make it evident that, whatever the underlying cause of the circulatory condition in this small group of men may be, the heart's reserve power in each one was decreased.

49. **Effect of Thymus on Growth.**—Olkon succeeded in obtaining a reduction of weight in the male guinea-pig by the injection of thymus gland intraperitoneally. After the injection, well marked changes took place, namely, muscle spasm, dyspnea, and convulsion. The muscular spasms that occurred after thymus was injected appeared more severe and of longer duration than of either the muscle or of the tenth-normal sodium chlorid injected guinea-pigs. Some animals died after large doses of thymus injection. The general appearance of the animals in the thymus series was that of grave metabolic disturbances, emaciation, accompanied by dryness and roughness of their fur.

Arkansas Medical Society Journal, Little Rock

November, 1918, **15**, No. 6

50 Inguinal Hernia. H. H. Kirby.—p. 99.
51 Intussusception. E. E. Ellis.—p. 104.
52 Use of Copper Sulphate as an Antiseptic. C. S. Pettus.—p. 106.

Boston Medical and Surgical Journal

Dec. 12, 1918, **179**, No. 24

53 Surgery of Stomach and Duodenum. J. T. Bottomley.—p. 719.

Bulletin of the Canadian Army Medical Corps

November, 1918, **1**, No. 7

54 Food Problem in Canadian Military Hospitals in England. I. D. Carson.—p. 92.
55 *Diphtheroid Infection of Wounds: Frequency of Diphtheroid Bacilli in Urethritis and Prostatitis. R. M. Janes and N. O. Thomas.—p. 96.
56 Urological Cases Illustrating What Can Be Done with Special Appliances. G. S. Gordon and C. M. McGill.—p. 98.
57 *Unusual War Psychoneurosis of Functional Loss of Sense of Smell. D. Wheeler.—p. 100.
58 *Fatal Case of Balantidiosis. F. B. Bowman.—p. 101.

55. **Diphtheroid Infection of Wounds.**—Sixty-three and five-tenths per cent. of open wounds examined by Janes and Thomas have shown diphtheroid organisms. Judging from those cases in which pure cultures were obtained, the authors believe that 6.4 per cent. of these open wounds showed infection with *B. diphtheriae*. Clinically, it is impossible to diagnose between diphtheroid and true diphtherial infection of wounds. A membrane does not necessarily indicate the presence of *B. diphtheriae* in wounds. It is not possible to distinguish between diphtheria bacilli and wound diphtheroids by morphological characters. Only by sugar reactions obtained from pure cultures can diphtheroid organisms be distinguished from true Klebs-Loeffler, and only after positive animal inoculation is it advisable to diagnose diphtheria in wounds. Flavine appears to have given better results than any other form of local treatment used in the hospital to which Janes and Thomas are attached. Hence it is considered advisable to administer diphtheria antitoxin in cases of diphtheria in wounds. The importance of giving a sensitizing dose in cases of war wounds due to their having received previous injections of serum is emphasized. If this rule is not followed severe anaphylactic reactions will occur in some cases.

57. **War Psychoneurosis: Functional Loss of Sense of Smell.**—Wheeler's case is interesting, because it demonstrates very clearly the four primary tastes. The man could only recognize things as acid, salt, bitter or sweet. He was quite incapable of recognizing any of his food—in fact, had lost that fine differentiation with which taste, and not smell, has usually been credited. He was unable to recognize volatile substances, such as strong ammonia, ether, oil of lemon, hydrogen sulphid, rosewater and oil of peppermint. Also a selection of different articles of foods were given to taste, such as cheese, butter, cabbage, potato, beef, jam, mutton, none of which were recognized. Considerable time was spent with the patient explaining his condition to him and assuring him that his sense of smell would be restored. A strong faradic current was applied to the back of the neck, and at the same time ammonia fortior was held under his nose, and he was instructed to tell what it was. At the end of one minute he recognized it as "ammonia." He next recognized oil of lemon with the aid of a weaker current.

58. **Fatal Case of Balantidiosis.**—This case occurred in a British West Indian soldier. Bowman says that a routine examination of the feces of men of the British West Indian Regiment disclosed that over 90 per cent. were infected with some parasite, and over 50 per cent. had hookworm disease. A trial with dilute solution of organic silver salts, both in balantidiosis and in amebic dysentery, is suggested.

Indiana State Medical Association Journal, Fort Wayne

Dec. 15, 1918, **11**, No. 12

59 Reporting Venereal Diseases. C. C. Pierce.—p. 435.
60 Physicians and Legislature. F. E. Schortemeier.—p. 436.
61 *Syphilis as It Pertains to the Eye. A. E. Bulson.—p. 438.
62 Anus, Rectum and Sigmoid. H. H. Wheeler.—p. 442.
63 Cerebrospinal Meningitis. Cases Occurring at Base Hospital, Camp Pike, Ark. C. G. Beall.—p. 445.

61. Abstracted in The Journal, Nov. 30, 1918, p. 1854.

Journal of Biological Chemistry, Baltimore

December, 1918, **36**, No. 3

64 Conductivity as a Measure of Permeability. W. J. V. Osterhout. —p. 485.
65 Effect of Diffusion on Conductivity of Living Tissues. W. J. V. Osterhout.—p. 489.
66 Proteins of Peanut, Arachis Hypogaea. C. O. Johns and D. B. Jones.—p. 491.
67 Influence of Protein Feeding on Concentration of Amino-Acids and Their Nitrogenous Metabolites in Tissues. H. H. Mitchell. —p. 501.
68 Urinary Excretion of Phosphates in Rabbit. F. P. Underhill and L. J. Bogert.—p. 521.
69 *Metabolic Changes Induced by Administration of Guanidin Bases. C. K. Watanabe.—p. 531.
70 Does Water Soluble Vitamine Function as a Catalase Activator? R. A. Dutcher and F. A. Collatz.—p. 547.
71 Curative Properties of Honey, Nectar, and Corn Pollen in Avian Polyneuritis. R. A. Dutcher.—p. 551.
72 Method of Measuring the Electrical Conductivity of Living Tissues. W. J. V. Osterhout.—p. 557.
73 *Effect of Maternal Ingestion of Desiccated Placenta on Rate of Growth of Breast-Fed Infants. F. S. Hammett.—p. 569.
74 Action of Enzymes on Human Placenta. V. J. Harding and E. G. Young.—p. 575.
75 Measurement of Acidity of Bread. E. J. Cohn, P. H. Cathcart and L. J. Henderson.—p. 581.
76 Quantitative Study of Evaporation of Blood Serum. G. H. Burrows and E. J. Cohn.—p. 587.

69. **Metabolic Changes Induced by Administration of Guanidin Bases.**—The administration of guanidin to the animal body induces a condition of severe acidosis with the retention of phosphates, a decrease of calcium in the blood, and a hypoglycemia. These phenomena are also observed in tetania parathyreoprivia. Further, the symptoms and all other physiologic evidences in guanidin tetany are almost the same as in tetania parathyreopriva. Since the discovery of the large increase of guanidin bases in tetania parathyreopriva and idiopathic tetany, Watanabe suggests that perhaps the fundamental cause of tetany is the increased formation of guanidin nitrogen brought about by the disturbance of the function of the parathyroid.

73. **Effect of Placenta on Growth of Infants.**—During a series of experiments designed to show whether or not the maternal ingestion of desiccated placenta would have an effect on the chemical composition of the milk produced during the early stages of lactation, a comparison of the growth of the infants feeding on the milk produced during its administration with the growth of those subsisting on milk from mothers who had not been given the material, led to the idea that the feeding of this substance to the mothers had an effect on the rate of growth of their breast-fed infants entirely aside from the percentage change in the determined constituents. All patients were given desiccated placenta in the same dosage, e. g., 10 grains in capsules, t. i. d. From these, only those mothers were chosen whose parturition course was normal, and only the weights of those infants are utilized whose sole source of nourishment was the maternal breast. The diet of the mothers and the method of weighing of the infants were the same as reported in a previous paper on the normal growth capacity of infants. The effect of the ingestion of the desiccated placenta by the mothers on the rate of growth of the breast-feeding infants was at once apparent. In each group not only was the postnatal decline in weight less in amount, but also the gain in weight after the preliminary loss was greater in every case on every day than that recorded for the normal groups, the mean increase over the normal percentage change in weight on the thirteenth day being over 60 per cent.

There is no doubt that the rate of growth of breast-fed infants is enhanced by the maternal ingestion of desiccated placenta, for not only is the recovery to or over the initial weight generally more rapid, but the weight is almost uniformly greater. The growth capacity of infants subsisting on the milk produced during the administration of desiccated placenta is also increased. A large series of comparative measurements of the mammae of women taking and not taking the desiccated placenta, combined with a study of the time of onset of full milk production, failed to show either hypertrophy of the gland or an increased milk production on the part of those women ingesting the placenta material. Hammett concludes that there must be contained in the desiccated placenta some substance, or substances, capable of passing through the maternal organism with at least a part of its activity retained. Being secreted by the mammary glands, it is passed onto the infant in the milk, there acting as stimuli to growth.

Journal of Cancer Research, Baltimore

October, 1918, **3**, No. 4

77 *Occupational Cancer. H. C. Ross.—p. 321.
78 *Multiple Skin Metastases from Cancer of Internal Organs. N. Suzuki.—p. 357.

77. **Occupational Cancer.**—A recent government inquiry into pitch cancer at the briquette works in South Wales, England, disclosed some new clinical facts which make it appear that some definite if not specific, chemical rather than mechanical action is concerned in the causation of individual cancer. This led Ross to the investigation of other commodities the use of which also gives rise to cancer under certain conditions; and when all of them are examined collectively, there seems to be considerable evidence, both circumstantial and experimental, to show an association between certain chemical products of death and putrefaction contained in or produced by the commodities themselves and the onset of the disease. Ross investigated coal, tar, pitch, soot, napthalene, and other tarry commodities, anilin dyes, petroleum, grease, tobacco, betel nut, roentgen rays and radium rays, arsenic cancer and manure. This investigation showed that mechanical injury per se can play only a minor part in the predisposition to occupational cancer. Apart from the evidence in this respect given by the coal-tar industries, the action of petroleum, arsenic, manure, tobacco, etc., also demonstrates it; for some of these commodities are solids, some are liquids, and physically they differ a great deal in other respects. Yet they all seem to bring about the predisposition to malignancy in a somewhat similar manner, namely, by becoming impacted in the tissues, where, by giving rise to cell proliferation, they produce a warty condition. The warts usually ulcerate at their bases and drop off, leaving an intractable sore. It seems to be the edges of the ulcers that become epitheliomatous, and there appears to be a specific liability, when the industrial warts are untreated, for this to happen.

All of the active commodities examined, with one exception, are products of, or are derived from, the products of the death and decomposition of living matter, although such death may have occurred centuries previously. Coal and its derivatives, including paraffins, charcoal, tobacco, betel nut and manure, all have such a derivation; the one exception is arsenic, and that, being a powerful cell poison, may possibly produce the products of cell death and decomposition in the tissues. In this connection, Ross calls attention to the fact, that carcinoma seems more frequent, in general, at sites which are continually subjected to organic matter undergoing bacterial decomposition, such as the rectum, stomach and indeed the whole intestinal tract, mouth, uterine cervix, breast (chiefly in women who have borne children), prepuce, anus, scrotum, etc. In sarcoma, on the other hand, this does *not* apply, any more than does the age incidence; but with occupational epithelioma especially, given that the predisposing cause of the disease is present equally in different parts of the body, it is usually in that part which is the dirtiest or which is affected with open ulceration that the malignant condition supervenes. Decaying organic matter of all descriptions fertilizes living matter, and promotes cell proliferation, being used extensively for the growing of plants in agriculture. Up to a certain point, the more putrid the matter, the more pronounced is this fertilizing property.

There is a probability that the mischievous agents are organic nitrogenous substances of a group common to all the dangerous commodities. In the coal carbonization commodities, the fact that the coal is bituminous seems to be essential. Other analytic experiments showed that the active agents were nitrogenous substances produced by the decomposition of proteins, and several were isolated and proved to consist, among others, of some of the purin bases, such as creatin, xanthin and tyrosin. For convenience the name auxetic was given to these cell division producing agents. Auxetics undoubtedly prompt proliferation. Healing of a damaged site presumably is brought about by auxetics set free by the injurious agent, the amount of proliferation being in ratio to the amount of damage, a theory which seems to be a reasonable one. Experimentally, therefore, the action of the commodities can be explained by the auxetics or augmentors contained in the commodities themselves. They become impacted in the tissues, either in the hair follicles or the sebaceous glands, or perhaps in fissures caused by slight mechanical injury. Auxetics are dissolved out of the commodities and set up cell proliferation, giving rise to thickening and warts. The warts slough and drop off, leaving an open ulcer, in which the overprolific cells at the edge are prone to become malignant.

The malignant invasion, judging by clinical evidence, seems to be due to some additional factor, possibly connected with production of more kinetics, which excite ameboid movement and still further augment the proliferation. Auxetics are produced as age advances, the physiologic increase of cell death during senescence having this result. It is part of the working hypothesis that the predisposition to cancer during senescence may be due to a predisposition to cell proliferation caused by auxetics physiologically free in the tissues in general. But in occupational cancer, in addition to the auxetics produced by any mechanical or chemical trauma, there are also those contained in the commodities themselves which would produce, and which actually seem to produce, a greatly increased if not specific predisposition. An effort is being made, to prove the auxetic theory by destroying those substances in tar on a large scale, and observing whether th's destruction prevents the incidence of warts and cancer at the briquette works.

78. **Skin Metastases from Cancer of Internal Organs.**—An analysis is made of 110 cases which Suzuki collected from the literature, to which are added five cases that have come under his own observation.

Journal of Experimental Medicine, Baltimore

Dec. 1, 1918, **28**, No. 6

79 Effect of Feeding Sugar on the Esterase Content of Blood Serum and Organs in Phosphorus Poisoning. J. P. Simonds.—p. 663.
80 Peptolytic Power of Liver, Spleen, and Kidneys in Poisoning by Phosphorus and Chloroform. J. P. Simonds.—p. 673.
81 *Relative Irritant Properties of Chlorin Group of Antiseptics. G. E. Cullen and H. D. Taylor.—p. 681.
82 Spirilla Associated with Disease of Fetal Membranes in Cattle (Infectious Abortion).—T. Smith.—p. 701.
83 Bovine Mastitis. Infection of Udder with Micrococci and Other Microorganisms. F. S. Jones.—p. 721.
84 Id. Sources of Infection in Streptococcic Mastitis. F. S. Jones.—p. 735.
85 Survival of Hog-Cholera Virus in Laboratory Animals, Particularly the Rat. C. Tenbroeck.—p. 749.
86 Paratyphoid Bacilli Isolated from Cases of Hog-Cholera.—C. Tenbroeck.—p. 759.
87 *Standardization of Antimeningococcic Serum. H. L. Amoss and P. Marsh.—p. 779.
88 Changes in Virulence of Pneumococcus at Different Periods of Growth and Under Different Conditions of Cultivation in Media. A. B. Wadsworth and M. B. Kirkbride.—p. 791.

81. **Irritant Properties of Chlorin Antiseptics.**—From experimental observations made on rabbit's ears with these solutions, Cullen and Taylor conclude that Dakin's hypochlorite solutions, of which the alkalinity is kept within the range of from 100 to 1,000 times the alkalinity of water (p_H of 9.3 to 10.2) by means of buffer salts, have practically the same degree of irritant action. Moreover, the manner in which these solutions are prepared, whether from bleaching powder and sodium carbonate, or from chlorin and sodium carbonate, and the type of buffer salt used, either carbonate or borate, have no influence on the degree of irritation. Solutions, however, that have an alkalinity less than that indicated by the end-point of alcoholic solution of phenolphthalein (p_H of 8.5 to 8.8), or greater than that indicated by the end-point to powdered phenolphthalein (p_H of 10.2), are intensely irritating. The sodium hypochlorite solution from which most of the calcium has been precipitated, and calcium hypochlorite solution seem less irritating than Dakin's solutions. The alkalinity in these unbuffered solutions is due mainly to the hydrolysis of the hypochlorite and is decreased as the hypochlorite is decomposed. This, rather than any specific action of the calcium, is probably the explanation of their lessened irritant action. It is also evident that the hypochlorite solutions maintain effective antiseptic concentration for about the same period of time, regardless of the manner in which they are prepared.

87. **Standardization of Antimeningococcic Serum.**—Experiments were made by Amoss and Marsh for the purpose of testing the reaction of protection against infection as a measure of potency of antimeningococcic serum. The results of these experiments were extremely variable and bore no relation to the quality of the serums as determined by the period of immunization of the horses from which they were obtained, or the indications of efficiency based on their employment in human cases of epidemic meningitis. The results also failed entirely to conform to the agglutination titer of the serum tested and to be affected by the different type forms of the meningococci. The authors regard the protective power for laboratory animals of the antimeningococcic serum as an unsuitable index of its value in human medicine and as inferior to the agglutination titer as a standard of potency.

Kentucky Medical Journal, Bowling Green

December, 1918, **16**, No. 12

89 The Doctor and the War. F. H. Martin.—p. 539.
90 Outlook for Feeble-Minded in Kentucky. A. Dixon.—p. 545.
91 Latent or Potential Syphilis. J. T. Windell.—p. 552.
92 Endocrinology and Opotherapy of Shock. R. A. Bate.—558.

Maine Medical Association Journal, Portland

December, 1918, **9**, No. 5

93 Maine's Defective Delinquents and Backward Chil dren. G. G. Fernald.—p. 105.

Military Surgeon, Washington, D. C.

December, 1918, **43**, No. 6

94 *Rôle of Hand in Distribution of Influenza Virus and Secondary Invaders. C. Lynch, and J. G. Cumming.—p. 597.
95 Summary of Activities of Section of Otolaryngology. H. P. Mosher.—p. 631.
96 Importance of a History as a Means of Detecting Psychopathic Recruits. A. W. Stearns.—p. 652.
97 Epidemic Cerebrospinal Meningitis at Camp Wheeler, Georgia. H. B. Scovern.—p. 662.

94. Abstracted in The Journal, Dec. 28, 1918, p. 2174.

Missouri State Medical Association Journal, St. Louis

December, 1918, **15**, No. 12

98 Pulmonary Tuberculosis: Diagnosis and Prognosis. S. P. Child.—p. 423.
99 *Hodgen Splint in Treatment of Fractures of Femur. C. P. Sherwin.—p. 429.
100 *Hodgen Extension Suspension Splint. F. G. Nifong.—p. 432.
101 Personal Responsibility of Physicians to Nation. F. W. Burke.—p. 436.

99 and 100. Abstracted in The Journal, June 15, 1918, p. 1889.

New Jersey Medical Society Journal, Orange

December, 1918, **15**, No. 12

102 Meningitis. H. I. Goldstein.—p. 409.
103 Ocular Manifestation of Systemic and Local Disease. B. M. Howley.—p. 418.
104 Centennial Address. L. M. Halsey.—p. 418.

New Orleans Medical and Surgical Journal

December, 1918, **71**, No. 6

105 Resistance of Ova of Toxascaris Limbata. M. Wigdor.—p. 264.
106 Case of Popliteal Aneurysm—Matas Operation—Recovery. G. T. Tyler, Jr.—p. 281.
107 *Effect of Lemon Juice in Pellagra. J. N. Roussel.—p. 283.
108 Surgical Treatment of Pott's Disease. P. A. McIlhenny.—p. 287.

107. **Effect of Lemon Juice in Pellagra.**—Roussel records good results which he has obtained from administering the juice of three or four lemons daily to pellagrins. From experience, he is convinced that most pellagra is of the scorbutic type, a land scurvy brought about by the fact that

people, especially those living in our sawmill towns, are literally living out of tin cans and cartons—living on predigested and ready cooked foods.

New York Medical Journal

Dec. 7, 1918, **108**, No. 23

109 Blight of Theory on Acquisition of Anatomic Knowledge by Ancient Egyptians. J. Wright.—p. 973.
110 Site of Lessened Resistance in Focal Infection. E. Steinfield. —p. 976.
111 Whooping Cough in Newly Born. H. B. Sheffield.—p. 980.
112 Problems in Obstetrics. I. Josephson.—p. 981.
113 Back Injuries and Their Relation to Workmen's Compensation Law. J. C. Scal.—p. 983.
114 Treatment of Influenza. H. J. Novack.—p. 984.
115 Evolution and Dissolution of Tubercle Bacillus Capsule. M. Staller.—p. 985.

Southwest Journal of Medicine and Surgery, El Reno

November, 1918, **26**, No. 11

116 Symposium on Spanish Influenza. (Held at Annual Meeting of Medical Association of Southwest, Oct. 17, Dallas, Tex.)—p. 241.

Surgery, Gynecology and Obstetrics, Chicago

December, 1918, **27**, No. 6

117 Cylindrical Dilatation of Common Carotid Artery Following Partial Occlusion of Innominate and Ligation of Subclavian. W. S. Halsted.—p. 547.
118 *Empyema at Camp Doniphan. C. B. Ingraham, J. A. Roddy and J. D. Aronson.—p. 554.
119 *Extra-Uterine Pregnancy Following Resection of Tube and Insertion of Catgut to Keep It Open. E. H. Tweedy.—p. 563.
120 Id. B. Solomons.—p. 566.
121 Indications for Surgical Interference in Ulcus Ventriculi. M. H. Gross and I. W. Held.—p. 567.
122 Abduction Treatment of Fracture of Neck of Femur. R. Whitman. —p. 578.
123 Fractures of Lower End of Radius. J. R. Harger.—p. 586.
124 Clinical Study of Puerperal Anemia. H. B. Schmidt.—p. 596.
125 *Gonorrheal Empyema. H. S. Woodbery.—p. 601.
126 Commoner Lesions Producing Backache. W. E. Shackleton.—p. 602.
127 Bismuth Paste in Case of Osteomyelitis of Carpus. D. H. Morris. —p. 605.
128 Nasal Refracture. L. L. Stanley.—p. 609.
129 *Acute Infective Nephritis. Report of Cases. R. P. Campbell and L. J. Rhea.—p. 611.
130 *Hematogenous Infection of Ovary. Report of Case. S. Wiener. —p. 622.
131 Trocar-Harpoon Method of Foreign-Body Localization with a New Holder. E. S. Blaine.—p. 624.
132 Self-Retaining Retractor for Use with Albee Bone Outfit. J. B. Lowman, and R. B. Pratt.—p. 626.
133 New Transfusion Apparatus. J. S. Wight.—p. 628.
134 *Paralysis of Upper Extremity Due to Compression of Brachial Plexus by Scar Tissue. F. C. Watson.—p. 629.

118. **Empyema at Camp Doniphan.**—The high incidence of *Streptococcus hemolyticus* in the tonsils and nasopharynx of normal individuals during the period when streptococcic pneumonia and empyema were prevalent was observed by the authors. Blood cultures showed the presence of organisms late in the disease in grave cases only as a rule. A positive culture is a most unfavorable prognostic sign. The pleural exudate obtained from empyema cases from which hemolytic streptococcus was recovered showed a distinct difference in its physical characteristics in the majority of cases from the empyema fluid from which the pneumococcus was recovered. The streptococci recovered showed the same morphological and cultural characteristics, but the irregularity of serological reactions does not permit drawing definite conclusions as to their belonging to the same group. Agglutination reactions with patient's serum appeared to be of no diagnostic value because of irregularity of reaction with streptococci. Postmortem findings in cases presenting both pneumonia and empyema caused by streptococci showed in most cases distinct lobular pneumonia; in a number of cases the interstitial form of pneumonia, especially in the cases of patients who had been ill for a long time.

119. **Extra-Uterine Pregnancy Following Tube Resection.**—Tweedy urges the adoption of the catgut bougie as a means of keeping open the tube lumen. The critical period for closure of the tubes is comprised within the first three days after operation, while peritoneal exudation is poured out and adhesions are rapidly forming. Hence the catgut serves to effect the desired end and then is absorbed. The retention of the gut for many days in the tubes is harmful. The ciliated epithelium can hardly escape injury, and the irritative effect which it must exercise on the muscle layers of the tubes will be still more important. It seems to Tweedy certain that these muscle bundles by their peristaltic contractions must be the force which enables the ovum to reach the uterus and he feels sure that an arrest of their peristaltic wave is an important factor in the occurrence of tubal pregnancy. Silkworm gut, could it be used, would be free from the fear of exciting a chronic salpingitis but were it employed there must be some method perfected for its removal.

125. **Gonorrheal Empyema.**—Woodbery cites the case of a girl 8 years of age on whom he operated for a general peritonitis, probably due to a ruptured appendix. Drainage was instituted and the abdomen was closed without any further examination of the viscera, as the child was very ill and it was thought best not to prolong the operation. Following the operation the clinical course of the disease was that of a general peritonitis. On the sixth day after operation there were signs of a pneumonia or an accumulation of fluid at the base of the right lung posteriorly. On aspiration of the right chest there was obtained about 2 c.c. of a thick yellow pus. From this finding it was thought that the child had a right-sided empyema, a thoracotomy of the right chest was done. When the chest was first opened no pus could be demonstrated, but when the child was turned flat on her back a few cubic centimeters of pus flowed out of the wound. The child died in twelve hours from what seemed to be a respiratory failure. No necropsy could be obtained. On the second day after the first operation the child was found to have a profuse, yellowish vaginal discharge, and on examination of smears made from this there was found only the gonococcus, the diagnosis being made from the morphology and staining characteristics. Smears made from the pus obtained at the time of aspiration and at the second operation showed again the gonococcus. A blood culture made on the sixth day after the first operation, using special mediums, was negative. An attempt was made to grow the organisms seen in the pus from the chest but all the cultures remained sterile.

129. **Acute Infective Nephritis.**—The cases studied by Campbell and Rhea present a gross picture which is characterized by multiple, small or large areas of acute infection which may, and as a rule do, proceed to abscess formation. These areas are for the most part situated in the cortex. The infection is usually unilateral. Clinically, it is manifested by all the signs and symptoms of an acute illness. The lesions produced may resolve or may leave the kidney so damaged that complete recovery is impossible and may serve as foci on which further infection may develop. The commonest infecting organism is a member of the bacillus coli group, but other organisms as staphylococcus and bacillus typhosus may produce similar lesions. The infection is in most of the cases probably lymphatogenous, or hematogenous, and in some of the cases of bacillus coli infection, some abnormal condition of the gastro-intestinal tract, seems to play a distinct part. There are frequently no demonstrable lesions of the genito-urinary tract which might contribute toward the localization of infection in the kidneys. Treatment may be palliative, but operation may be necessary. If nephrectomy is required and is performed early in the disease the prognosis is good.

130. **Hematogenous Infection of Ovary.**—In Wiener's case the *Streptococcus hemolyticus* was found in cultures of the pus from ovarian abscess. The original source of the infection was not found.

134. **Paralysis of Upper Extremity.**—In Watson's case the three cords of the brachial plexus were compressed between the clavicle and the first rib by scar tissue, involving chiefly the inner and posterior cords. As the scar tissue was carefully dissected off, the plexus was found to be intact. To prevent the reformation of scar tissue, a fascia transplant from the patient's thigh was sutured about the inner and posterior cords. Five months after the operation the arm could be held at a right angle to the body. Sensation was nearly normal.

Tennessee State Medical Association Journal, Nashville

October, 1918, **11**, No. 6

135 *Proper Interpretation of Bladder Symptoms. G. R. Livermore.—p. 217.
136 *Surgical Treatment of Varicose Veins. W. S. Anderson.—p. 220.
137 Antrum Infection. W. Dotson.—p. 223.
138 Radium Therapy of Radium Cases. E. T. Newell.—p. 226.
139 Prevailing Indications for Complete Ablation of Tonsils and Adenoids. N. E. Hartsook.—p. 230.
140 How May We Better Conserve Vision: Special Plea for More Effective Means of Preventing Traumatism. L. M. Scott.—p. 235.

135 and 136. Abstracted in The Journal, May 4, 1918, p. 1331.

Wisconsin Medical Journal, Milwaukee

December, 1918, **17**, No. 7

141 Application of Psychiatry to Classification of Draft Registrants. D. Luten.—p. 255.
142 Treatment of Cleft Palate. M. N. Federspiel.—p. 258.
143 Strabismus Convergence, Its Early Recognition and Treatment in Young Children. P. H. Dernehl.—p. 271.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

November, 1918, **23**, No. 6

1 Localization of Foreign Body in Eye. A. H. Pirie.—p. 169.
2 New Form of Screen Localizer. J. A. Shorten.—p. 182.
3 Simple Methods of Localizing Foreign Bodies: (1) General. (2) Eye Work. D. B. McGrigor.—p. 188.
4 Roentgenography of Gall-Bladder. N. Macleod.—p. 191.

British Medical Journal, London

Nov. 30, 1918, **2**, No. 3022

5 Spolia Opima. J. Bland-Sutton.—p. 593.
6 Temporary Pegs for Amputation of Lower Limb. W. A. Chapple.—p. 597.
7 Cardiac Conditions in Soldiers. R. O. Moon.—p. 599.
8 Thyro-Toxic Heart. G. R. Hall.—p. 600.
9 Digressions. A. J. Campbell.—p. 601.

Canadian Medical Association Journal, Toronto

December, 1918, **8**, No. 12

10 *Effect of High Carbohydrate Feeding on Nausea and Vomiting of Pregnancy. J. W. Duncan and V. J. Harding.—p. 1057
11 Diagrams for Showing Limitation of Movements Through Joints, as Used by Board of Pensions Commissioners for Canada. D. E. H. Cleveland.—p. 1070.
12 How to Provide Effective Health Administration in Small (Rural) Municipalities. E. Pelletier.—p. 1077.
13 Disinfection After Communicable Disease. R. K. Anderson.—p. 1080.
14 Control of Influenza in Ontario. J. W. S. McCullough.—p. 1084.
15 Epidemic of Influenza in Montreal. S. Boucher.—p. 1087.
16 Polya's Method of Anastomosing Proximal Gastric Stump with Jejunum. E. M. Von Eberts.—p. 1093.
17 Irregularities of Heart, in Association with Visceroptosis. W. S. Morrow.—p. 1101.

10. **Effect of High Carbohydrate Feeding on Nausea and Vomiting of Pregnancy.**—Duncan and Harding have proceeded on the assumption that in the early toxemias of pregnancy the dominant factor is a metabolic one. They have utilized the physiologic results of Imrie and of Mottram to connect the fatty degenerated liver found in postmortem examination of fatal cases of pernicious vomiting with the mild and moderate cases of vomiting. A temporary lack of carbohydrate supply has been assumed. In practically all cases of nausea and vomiting in pregnancy, acetone bodies were found in the urine. The authors have endeavored to correct the deficiency of carbohydrate supply by administering glucose or lactose, but mainly the latter, and supplemented this by a high carbohydrate diet. In this way they have successfully treated over seventy cases of nausea and vomiting in pregnancy, including several severe cases of the pernicious type. The patient is advised to rest, as far as possible, demands of housekeeping are limited, and any exciting factors removed. Meat and fatty foods are eliminated from the diet and their place is taken by a liberal supply of carbohydrate food, such as potato, rice, oatmeal, vegetables and fruit. In addition, one to one and a half quarts of a 5 per cent. lactose solution are taken daily by mouth. If this solution is not tolerated by mouth it is given by rectum. The actual amount of lactose to use is determined by constant urine examination. With the first sign of lactosuria, the dosage is diminished. When the nausea and vomiting are fully controlled, the amount of lactose is rapidly cut down to about 15 gm. per day. The patient may rapidly return to ordinary diet. All women so treated recovered very rapidly, and were delivered at full term of healthy children.

Dublin Journal of Medical Science, Dublin

November, 1918, **146**, No. 563

18 Surgery of Chest as Carried Out at "The Front." W. Taylor.—p. 201.

Journal of Tropical Medicine and Hygiene, London

Nov. 15, 1918, **21**, No. 22

19 Classification of Trypanosomes. A. J. Chalmers.—p. 221.

Lancet, London

Nov. 30, 1918, **2**, No. 22

20 Standard of Cure in Treatment of Gonorrhoea. E. R. T. Clarkson.—p. 731.
21 Use of "Antigens" in diagnosis by Wassermann Reaction. C. H. Browning and E. L. Kennaway.—p. 733.
22 *Relative Content of Antiscorbutic Principle in Limes and Lemons. H. Chick, E. M. Hume and R. F. Skelton.—p. 735.
23 *Case of Repeated Cessation of Heart Beat. E. P. Poulton, and H. M. Stewart.—p. 738.
24 Spacing of Injections in Maintenance of a Pneumothorax. C. Lillingston.—p. 739.
25 Blue Sclerotics, in Connection with Other Hereditary or Congenital Abnormalities. N. Voorhoeve.—p. 740.

22. **Antiscorbutic Principle in Limes and Lemons.**—The antiscorbutic value of the juice of fresh limes (*Citrus medica,* var. *acida*) was compared experimentally by Chick and her associates with that of fresh lemons (*Citrus medica,* var. *limonum*) and was found to be distinctly inferior. Volume for volume of fresh lime juice possesses a potency of about one-fourth that of lemon juice. In one instance severe scurvy developing in a monkey on a diet containing a small daily ration (5 c.c.) of fresh lime juice was cured by an equal ration of fresh lemon juice. Preserved lime juice was found useless for the prevention of scurvy by the method employed. Experiments with preserved lemon juice are still in progress, but give promise of better results.

The experimental results are fully confirmed by a historical study of "lime juice" in connection with human scurvy. At the period when scurvy was eliminated from the British navy by its agency the term was used to express the juice of lemons, and it was not until the second half of the nineteenth century that the juice of West Indian limes was adopted in the navy and mercantile marine. The history of two Arctic expeditions, that of the Investigator, 1850, and that of the Alert and Discovery, 1875, was carefully investigated. The former, supplied with lemon juice, experienced remarkable immunity from scurvy during the first two years of great difficulty and privation; the latter, supplied with lime juice, suffered severely from scurvy at the end of the first winter spent in the Arctic regions.

23. **Case of Repeated Cessation of Heart Beat.**—Only one other case of arrest of the heart for so long as thirty seconds was found recorded by Poulton and Stewart. Their patient was a man, aged 67 years. During every two minutes the pulse completely stopped for forty-seconds. This sequence of events continued with regularity. There was no obvious abnormality about the heart. The patient was emphysematous and the apex beat barely palpable. There were no murmurs. When the pulse stopped no beat of the heart was audible with the stethoscope; nor was there any sound suggestive of auricular beats. No venous pulsation in the neck was observed. The man died with signs of cardiac failure.

Medical Journal of Australia, Sydney

Nov. 9, 1918, **2**, No. 19

26 Fifty-One Cases of Intussusception. P. L. Hipsley.—p. 383.
27 Some Common Faults in Midwifery Practice. R. Worrall.—p. 386.
28 Influenza Epidemic. A. L. Buchanan.—p. 388.

Archives des Maladies du Cœur, des Vaisseaux, etc., Paris

October, 1918, **11**, No. 10

29 *Aneurysm of Left Auricle. R. Lutembacher.—p. 434.
30 *Insufficiency of Left Ventricle. C. Laubry and L. Marre.—p. 458.

29. **Aneurysm of Left Auricle.**—Lutembacher published last year a case of this kind as a contribution to the study of bigeminal rhythm. In that case the cavity had a capacity of 400 c.c. It was not a simple retrodilatation secondary to a mitral lesion but an actual ectasia caused by grave and primary degenerative lesions of the wall of the auricle. It developed under his eyes from embolic obstruction of the afferent branches of the coronary artery. He now describes an additional case with a similar mechanism, but the wall of the auricle was already the seat of an old inflammatory process. The patients were young men; the first had a history of acute rheumatism, the other only a pleurisy without effusion in 1910. In the latter the aneurysm capacity was 500 c.c.

30. **Insufficiency of Left Ventricle.**—Laubry and Marre describe a case in which the slow and progressive insufficiency of the left ventricle had developed in consequence of the obliteration of the aortic orifice. There was no history of acute rheumatism in the case. The clinical picture had been extremely puzzling as the blood, passed through the narrow slit that was the only opening left, was too small in amount to induce any murmur. The necropsy findings are illustrated.

Bulletin de l'Académie de Médecine, Paris

Nov. 12, 1918, **80**, No. 45

31 Colloidal Tin in Treatment of Influenza. A. Netter.—p. 427.
32 Differential Diagnosis of Influenza Pneumonia and Pneumonic Plague. H. de Brun.—p. 437.
33 *Trench Fever. R. P. Strong.—p. 444.
34 *Bone Grafts. J. S. Dauriac.—p. 446.
35 *Tendon Grafts. J. Nageotte and L. Sencert.—p. 448.

33. **Report of Research on Trench Fever.**—As mentioned in the Paris Letter, Dec. 21, 1918, p. 2090, Strong relates that 103 experiences on human volunteers have absolutely established that trench fever is a specific infectious disease caused by a filtrable virus transmitted naturally by the bite of the body louse or by urine or sputum. In commenting on this report, Roux remarked: "This work of the American Commission is a model by the ingenious and vigorous manner in which it was conducted. Thanks to the American soldiers who volunteered for the experiments, so that the nature of the disease to which their comrades were going to be exposed could be ascertained, everything in regard to the etiology and prophylaxis of trench fever was rapidly cleared up. The method employed by the American Commission and which consists in experimenting on men ready to volunteer for the purpose, has already afforded decisive certainty in our knowledge of yellow fever and other diseases. The risks which it inflicts on the patients who thus victimize themselves are paid for by the results by which all humanity profits." The other members of the commission, besides Major Strong, are said to have been Major Homer Swift, Major E. L. Opie, Capt. W. J. MacNeal, Capt. W. Baetjer, Capt. A. M. Pappenheimer, Capt. A. D. Peacock and Dr. D. Rapport.

34. **Bone Grafts.**—Dauriac reiterates that, with F. Albee's technic, bone grafts can be counted on to repair vast losses of substance, when otherwise amputation would be inevitable. He has applied this technic to all the long bones and with constant and equal success. The graft must always be taken from the subject himself, and the intervention must be postponed until all suppuration is long past, and a course of remineralization has prepared the bones for repair. The graft is taken from the sound mate, and is cut long enough so the ends fit far into sound tissue at each end, and the graft is fastened in place only with absorbable substances, never with metal. The access to the focus must never be through the old cicatrix, as this might rouse latent infection. Of equal importance is the warning not to immobilize the limb too long, but give it a chance for the normal dynamic functioning of the bone. According to Wolff's law, then, the bone will assume the shape and strength which its function demands. His long experience with this method justifies, he says, the highest hopes from it to uncripple the cripples, and he urges a special service for reconstruction of this kind on a large scale.

35. **Tendon Grafts.**—Nageotte and Sencert bridged gaps of 3 or 4 cm. in the tendons of the palmar side of the wrist by introducing six segments of tendons from dogs. The tendons had been kept in alcohol for a month. Each graft was fastened in place with two catgut sutures at each end. The aponeurosis of the brachialis was drawn over the whole and the skin was sutured without draining, and healed by primary intention. All the fingers can be completely extended, and flexion is almost complete for all except the middle finger which cannot be completely flexed.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 11, 1918, **42**, No. 28

36 *Influenza. L. Rénon and R. Mignot.—p. 844; J. Thiroloix.—p. 898.
37 Sinusal Bradycardia of Myocardiac Origin. M. Descos.—p. 907.
38 *Tuberculosis of Traumatic Origin. M. Descos.—p. 911.
39 *Limits of Radioscopy of Lungs. C. Mantoux and Maingot.—p. 914.
40 Intermittent Fever with Meningococcus Septicemia. Serr and Brette.—p. 917.
41 Case of Lethargic Encephalitis. Serr and Brette.—p. 922.
42 *Influenza in Bretagne. P. Merklen.—p. 924.
43 *Evolution of Ameba of Dysentery. E. Job and Hirtzmann.—p. 928.
44 **Sign of Sciatica. L. Rimbaud.—p. 930.*
45 Paralysis of Four Nerves in Foramen Lacerum. Rimbaud and Vernet.—p. 931.
46 *Acute Leukemia with Spirochetosis. Sicard and others.—p. 934.
47 Case of Icterohemorrhagic Spirochetosis of Cerebral Type. Pierre-Kahn and R. Debré.—p. 940.
48 Occupational Ridges in Skin of Back. D'Oelsnitz.—p. 942.

36. **Influenza.**—A similar article by Rénon and Mignot was reviewed recently in these columns. Thiroloix urges the importance of washing the hands before eating, and heating the loaf of bread in the oven the last thing before it is brought hot to the table. This sterilizes the outside from the contacts with different hands. The beverages should also be taken hot for the same reason, except wine from the bottle. All raw foods should be avoided during "flu" times. We should realize that every object and the air surrounding an influenza patient are liable to have been contaminated by droplets from him. Netter and Josué among others advocate suprarenal treatment, as a number of the symptoms in influenza reveal suprarenal insufficiency. Sergent declares that suprarenal treatment is usually too timid. It should be given in fractional doses, but up to 5 or 8 mg. is none too much. The subcutaneous or intramuscular route is preferable to ingestion. He suggests that instead of using convalescents' serum there might be advantage in transfusing whole blood, citrated, from the convalescent, and not the serum alone. This has proved very effectual in grave measles in Ribadeau-Dumas' hands. He intends to try it in influenza.

38. **Traumatic Pulmonary Tuberculosis.**—Descos' patient was a healthy aviator who did not seem to feel any evil consequences for about a month after a fall of 90 feet, hitting the left chest. Then fever developed and acute pleuropulmonary tuberculosis. There was little expectoration but tubercle bacilli were found in the sputum, and the seventh week acute pulmonary edema proved fatal. *Necropsy* disclosed all recent lesions.

39. **Limits of Radioscopy of the Lungs.**—Mantoux placed on the chest a piece of tuberculous tissue from a cadaver and found that even quite thick and large pieces of such tissue cast no appreciable shadow in radiographing persons of average build. The stethoscope may reveal lesions that escape the roentgen rays, and in any event the absence of roentgen findings cannot be accepted as conclusive demonstration as to the certain integrity of the parenchyma of the lung and of the pleura.

42. **Influenza.**—Merklen emphasizes that in his district influenza was mild for two or three months. Then it became virulent and now (in October) it is extremely virulent. Very few cases are observed in children, and the fatal cases are in the robust young people or older ones with already damaged lungs. Hot packs around the chest and fixation abscesses aid in subacute cases still capable of reacting. Venesection

should be tried in cases with cyanosis and pulmonary edema, but it is not so useful *for toxic processes* as for vasomotor disturbance.

43. **Evolution of the Ameba.**—*Job* and Hirtzmann report that the ameba of dysentery, such as we see it in the stools, is only one phase of the evolution of the parasite. The pathogenic phase is an intracellular parasitism. The young protozoon penetrates into a liver cell: *at that time it is* reduced to a homogeneous nucleus. The nucleus of the liver cell enters into karyolysis, the protoplasm develops vacuoles and tends to disappear completely, the parasite gradually supplanting its host entirely.

44. **Sign of Sciatica.**—Rimbaud noticed that in about 70 per cent. of his cases of surgical lesions of the sciatic nerve and in 25 per cent. *of medical sciatica* cases, the groove each side of the Achilles tendon seemed to be effaced, flattened out. It seems to be a manifestation of hypotony *on the* part of the muscles in which the Achilles tendon has its point of attachment. This useful objective sign of sciatic disease can be determined by placing *the subject as if to* elicit the Achilles tendon reflex.

46. **Acute Leukemia with Spirochetosis.** — The case described by Sicard and his co-workers differs from the other cases of "French spirochetosis" on record in that the clinical picture was that of a subacute leukemia, fatal in five months. The patient was a clerk *of 46. and spirochetes* were found *in the* urine *during life* and in the liver and kidney after death. Inoculation of guinea-pigs with blood and urine was negative, but the serum agglutinated *promptly the* icterohemorrhagic spirochete. The health had been normal before: no history of syphilis or malaria. The first symptoms were impairment of vision, loss of appetite, insomnia and digestive disturbance. Necropsy showed the liver in fatty degeneration but the kidneys and lungs were approximately normal and there was no enlargement of glands.

Paris Médical

Oct. 26, 1918, **8**, *No. 43*

49 Curable Forms of Acute Meningitis. P. Mauriac.—p. 326.
50 Incubation in Syphilis. A. Jambon and A. Tzanck.—p. 330.
51 Technic for Cultivating Bacteria from Typhoid Blood. L. Tribondeau.—p. 333.
52 Radioscopy in Case of Interventricular Communication in the Heart. M. *Perrin and* P. Malot.—*p.* 338.

Nov. 2, 1918, **8**, *No. 44*

53 The Explosions on the Battle Field. Chavigny.—p. 341.
54 Exploratory Thoracotomy for Tumors. E. Mériel.—p. 343.
55 *Tetanus in a Case of Complete Section of Spinal Cord. H. Claude and J. Lhermitte.—p. 345.
56 *Dangers *of Epidermitis.* H. Gougerot.—p. 348.
57 Dulness with *Abdominal Effusions.* Costantini *and* Vigot.—p. 352.

55. **Tetanus After Section of Spinal Cord.**—The *projectile* had pierced the spine and the paraplegia was of the total section type. The thirty-second day the legs developed severe tonic and clonic contractions with trismus and sweating of the upper part of the body. Death followed in four days, necropsy confirming the anatomic section of the cord at the eighth dorsal segment. The case reaffirms the independent activity of the lower part of the spinal cord.

56. **Epidermitis.**—Gougerot warns of the danger of chronic epidermitis as liable to set up erysipelas, etc., if the skin is incised at a point thus affected.

Presse Médicale, Paris

Nov. 11, 1918, **26**, No. 62

58 *Crippled Digestions. M. Labbé.—*p.* 569.
59 *Open and Closed Pulmonary Tuberculosis. C. Mantoux.—*p.* 570.
60 *Radical Cure of Genital Prolapse. S. Mercadé.—p. 573.

58. **Crippled Digestions.**—Labbé discusses how to exclude actual anatomic disease or definite physiologic upset, and recognize what he calls crippled digestions, and determine the type *of* the latter. The treatment *required* differs from case to case, but good hygienic conditions give the digestion the best chance to right itself.

59. **Open and Closed Pulmonary Tuberculosis.**—Mantoux analyzes the later course in 2,000 men with or suspected of pulmonary tuberculosis that have passed through the *service de triage* at the Laennec hospital. He emphasizes the differences between "open" tuberculosis, *that is, the* cases with ulceration from the start, and those with healed ulceration, and those that have not presented ulceration, that is, the "closed" cases. The *tuberculosis* is progressing but there is *no ulceration.* The *affection* is relatively mild; none of the men in this group have died. He emphasizes that radiography *gives much* more instructive findings than radioscopy. In conclusion he refers to Heise and Sampson's recent description *of a peribronchial form,* rarely opening into a bronchus, *and suggests* that this may be the habitual anatomic form of nonulcerative pulmonary tuberculosis.

60. **Treatment of Prolapse of Female Genital Organs.**—The principles of Mercadé's *method* have already been described *in these* columns (Nov. 9, 1918, p. 1615). It is based on the assumption that with a tendency to prolapse it is the roof of the *anterior vagina that sags first* under the strain from the abdomen. The bladder sags next, and the uterus not until after this. He cuts a lozenge *out of the roof* of the anterior *vagina,* and then detaches *the bladder* very carefully, pushes it up, and makes a solid support for it by *suturing the levator ani* muscles together along the median line. *Six large illustrations* show the various steps of *the* method, *as he has* applied it in seven cases, all radically *cured* by it.

Progrès Médical, Paris

Sept. 21, 1918, **33**, No. 39

61 *Intracranial Hemorrhage of the *Newborn. H.* Vignes.—p. 321.
62 *Fracture of Clavicle. F. Hidden.—p. 322.
63 Iodin in Treatment of Warts. Loison.—p. 324.

Sept. 28, 1918, **33**, No. 40

64 *Gluteal Reflex* with Lesions of Sciatic Nerve. Lhermitte.—p. 329.
65 Symptoms of Incomplete Ileus. J. Fiévez.—p. 331.
66 Access to Splenic Flexure. *J. Fiévez.*—p. 332.
67 *The Wassermann Reaction. Carle.—p. 333.
68 Hysteria *Simulating Epilepsy.* Bernheim.—p. 335.

61. **Intracranial Hemorrhage in the New-Born.**—*Vignes* declares that although the prognosis may not be absolutely fatal, yet the sequels in the survivors justify the most heroic measures to clear out the *extravasated blood.* He describes the symptoms liable with hemorrhage above and below the tentorium. Operating without delay and reducing the loss of blood to the minimum will aid in keeping down the mortality which to date is 50 per cent. Lumbar puncture may be useful, repeated two or three times a day if it brings blood. Simmons incised the fontanel and dura, and evacuated the blood rapidly in this way in some desperate cases. If the skull is to be opened, this should be on the side opposite the arm presenting the most pronounced convulsions. The base of the skull flap should be about 5 cm. across, and every vessel that has to be severed must be ligated with fine silk. If the *blood* is *not* clotted, he advises leaving a drain for a day, puncturing if hemorrhage in the ventricle is suspected. If the brain is bulging, without hemorrhage, bilateral trephining will relieve the pressure. If the injury is below the tentorium, the child is quiet and does not scream *but is somewhat* cyanotic and presents nystagmus. As the blood flows down the spinal subarachnoid space, there is stiffness of the neck, and diffuse rigidity, with erection. Lumbar puncture always shows blood and the fontanels do not bulge. *With the subtentorial* hemorrhage, *Cushing's occipital* incision is called for.

62. **Fracture of the Clavicle.**—Hidden expatiates on the advantages of a device which draws the shoulders outward, backward and upward, thus immobilizing the fractured clavicle in the best position for repair. This is *accomplished* with two round metal rings which fit over the *shoulders* and are tied together at the back and also at the *front.* These rings can be made hollow or they can be made of wire *with* an envelope of *plaster.* They are wound with cotton and the *force* is applied in tying the rings together at the back. The arms are left entirely free with this contrivance, but it is better to keep the patient in bed the first day. The *rings* are bent a little to fit the parts, as is shown *in the* illustrations.

67. **The Bordet-Wassermann Reaction.**—Carle has been *investigating* this reaction in connection with *the* date of contamination. He *found* that it is rarely positive *before*

the fiftieth day from the date of infection. Hence a dubious or negative response before that must be regarded with suspicion. Even before the fiftieth day, however, there is usually some more or less slight positive response that warns to be on the alert. A persistently negative response, on the other hand, is strong presumption that the genital lesion is merely a soft chancre. In about one case in every twenty-six in his experience, the response persisted negative until the roseola appeared—then veered to positive. In the second phase of untreated syphilis, the Wassermann reaction is most reliable, but treatment should never be suspended in this stage because the Wassermann reaction has become negative. In any event, he reiterates, tentative specific treatment should be given a trial in all dubious cases, regardless of the Wassermann findings.

Revue Médicale de la Suisse Romande, Geneva

October, 1918, **38**, No. 10

69 Mongolian Idiocy and Quadruped Gait. P. Bourdillon.—p. 585.
70 *Menstrual Psychosis. F. Naville.—p. 591.
71 *Stones in the Appendix. F. Blanchod.—p. 599
72 *Ileus from Cherry Stones. A. Kotzareff.—p. 611.
73 Influenzal Paralysis of Soft Palate. L. Du Pan.—p. 613.

70. **Menstrual Psychosis.**—Naville reports a case of "dream delirium" in which the erotic delirium was accompanied by melancholia, ideas of suicide and a tendency to mania. The young woman was of the microcephalous type, with a tendency to migraine and dysmenorrhea, and inability as a child to keep up with her class in mathematics. Cases of this kind are often mistaken for dementia praecox, but we should be careful not to regard every acute mental incident in a person naturally below par or a psychopath as necessarily the indication of a psychosis with a progressive course. In this case measures to promote menstruation and regulate the functions generally were soon followed by subsidence of the tendency to psychosis, and the young woman has had no recurrence since, during the six years to date, although she is still childish and emotional.

71. **Calculi in Appendix.**—Blanchod was examined with the roentgen rays forty-five hours after beginning of symptoms which were explained by the shadows of two calculi which projected above the crest of the ilium. The urine was normal, which exculpated the ureters, suspected at first. The calculi were found in a retrocecal pus pocket, and the appendix was totally gangrenous. Bronchitis followed the operation, and then both parotid glands suppurated, discharging through the ducts of Steno. The parotitis seemed to act like a fixation abscess and prompt recovery followed. As a boy of 13, he had been kept in bed for three weeks with appendicitis but the appendix had never given any signs of its existence otherwise. If he had known he was harboring two calculi in his appendix he would scarcely have ventured on the trip to India as inspector for the Red Cross of prison camps in the Orient. He was far in the interior of India when intense pain developed in the right flank. He remarks that his case reaffirms the frequent difficulty of diagnosing appendicitis with stones. J. Roux has reported nine cases in seven of which the roentgen rays revealed the stones. In one of the cases the stone in the appendix induced a set of symptoms exactly like those from a stone in the ureter. In another case the stone was not discovered until investigating to learn why the fistula from the operation on the appendix refused to heal. In another case the supposed stone must have been the shadow cast by a calcified gland in the ileocecal angle. Radiography was constantly negative in one case until the fourth application, when the calculus cast an unmistakable shadow. In another case the calculus found in the appendix at the operation had never cast any shadow. The case in Blanchod's own person is the fourteenth on record, he says, in which the calculus was revealed by the roentgen rays before the operation.

72. **Ileus from Cherry Stones.**—Two tumors with a tender zone between, all in the descending colon, proved to be an accumulation of 712 cherry stones. No cherries had been eaten for several months, and microscopic examination at necropsy revealed incipient malignant disease. The latter had probably interfered with normal peristalsis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 16, 1918, **48**, No. 46

74 Treatment of Anemias. W. Löffler.—p. 1521.
75 *Ethyl-hydrocuprein (Optochin) Amaurosis. M. Ujiie.—p. 1556.

75. **Amaurosis Under Ethyl-Hydrocuprein.**—Ujiie reports the case of a girl of 10 who died in the third week of a pneumococcus peritonitis with sudden stormy onset in the midst of health. Complications on the part of the lungs had followed a laparotomy which had confirmed the diffuse suppurative peritonitis. The child was then given six doses of 0.2 gm. ethyl-hydrocuprein (optochin) at four hour intervals. Two days later there was total amaurosis which persisted till death, only slightly receding toward the last, allowing perception of light. The microscope showed edema and vacuoles in the retina, with swelling and beginning destruction of the nerve fibers in the optic nerve. Necropsy of some pneumonia patients who had taken optochin without disturbance in vision showed the optic nerve entirely normal. Uhthoff has also reported recently two cases of optochin amaurosis in men of 28 and 45 with extensive destruction of the medullary sheath of the optic nerve as evidenced by Marchi staining. All the findings readily explain why in one case there may be complete and integral restitution while in another permanent damage may result.

Policlinico, Rome

Nov. 3, 1918, **25**, No. 44

76 War Wounds of Nerves. M. Fasano.—p. 1049. Cont'n.
77 *Autoserotherapy in Influenza. L. Meille.—p. 1055.
78 *Radioscopic Records. V. Stenico.—p. 1057.
79 Criminal Abortions. E. Santi.—p. 1057.
80 *Silver Nitrate for Mustard Gas Lesions. G. Viale.—p. 1061.

77. **Autoserotherapy in Influenza.**—Meille reports favorable experiences with subcutaneous injection of 1 or 2 c.c. of the patient's own serum, taken from the blood drawn twelve hours before and set aside in a slanting test tube. The complications of the influenza did not seem to be modified, but the general condition showed marked improvement. Saline infusion proved a useful adjuvant, with venesection unless the heart action was too weak for this.

78. **Radioscopic Records.**—Stenico places a sheet of glass over the screen and draws on this the outlines of the shadows cast on the screen. It is easy to get a copy of this by applying a moistened paper, a sheet of cardboard, and a bag of sand on top, as a letter is copied in a letter press. Two or even three of these copies can be made, and they prove valuable records of the cases.

80. **Mustard Gas and Silver Nitrate.**—Viale was unable to confirm Amantea's statements in regard to the effectual neutralization of yperite by silver nitrate. He experimented on the human while Amantea's research was done mostly on animals. It did not seem to impede or limit the injury from the mustard gas, but it had an unmistakable action in promoting the healing process. Viale's experience also teaches the necessity for leaving the lesions open to the air. The fumes held in by a dressing cause new lesions.

Riforma Medica, Naples

Nov. 2, 1918, **34**, No. 44

81 *Nature of Febrile Pandemic. U. Baccarani.—p. 870.
82 *Epidemic Meningitis. R. De Nunno.—p. 872.
83 Emetin in Rebellious Malaria. E. Carlino.—p. 875.
84 *Febrile Pandemic. Referendum. Ceconi and others.—p. 876.

81. **Nature of Influenza.**—Baccarani is inclined to believe that influenza is a polybacterial epidemic. No one germ is responsible for it. The germs causing it have had their virulence suddenly enhanced by some mysterious influence, electric, atmospheric or telluric, some sudden modification of the physical and chemical ambient in which mankind lives. Besides the bacteria, the pathogenic factor is probably a complex of many minute causes. These of course are beyond our ken. Too little is known yet of these *cyclonoses* for us to hazard any serious contributions to this important subject.

82. **Laboratory Inferences in Meningitis.**—Nunno's tabulations are not published with this article but will accompany the reprints. They are said to show the various findings in

the cerebrospinal fluid as compared with the clinical course of epidemic meningitis. The urea content seems to have a bearing on the prognosis, but not the albumin content, although the latter may be useful in differentiation from tuberculous meningitis. Determination of the chlorids throws light on both diagnosis and prognosis, as also the content of substances reducing the Fehling reagent. When the fluid is limpid or only slightly turbid, epidemic meningitis is indicated by a content in albumin close to 3 per thousand; of chlorids above 6.09 and below 7.32 per thousand, and the reducing substances diminished or lacking. A favorable prognosis is indicated by chlorids above 6.43 and urea below 0.24 per thousand, and the reducing substances not too low. The Vincent-Bellot precipitation test is valuable for the differential diagnosis. It is more reliable when done with the zonal technic. If the meningococci are found loose in the fluid, especially when associated with other germs, the outlook is extremely grave. As the meningococci are frail, they are liable to die when sent to a distant laboratory for identification. The diagnosis can usually be based on the precipitation reaction and the chemical tests mentioned above so that the specific antiserum can be injected without delay. Nunno regards a limpid fluid at the first examination—before serotherapy has been attempted—as a very unfavorable sign.

84. **Quinin in Influenza.**—Cecconi relates the significant fact that in a town in Italy where malarial soldiers are segregated, there has not been a case of influenza among the malarial inmates of the four hospitals, although the physicians, nurses, clergy and others connected with the hospital had the disease in epidemic form. Is malaria incompatible with influenza? he queries, or does the quinin the men are taking protect against it?

Anales de la Facultad de Medicina, Montevideo

January-February, 1918, **2**. No. 13-14

85 Polycythemia. R. Lutembacher.—p. 849.
86 Relations Between Colon and Diaphragm. D. Prat.—p. 873.
87 Radium Treatment of Uterine Cancer. M. B. de Bengoa.—p. 886.
88 Case of Achondroplasia. J. C. M. Fournier.—p. 892.
89 Vaccination Against Typhoid in French Army. Claveaux.—p. 901.
90 Antigonococcus Vaccine Therapy. J. E. Moreau.—p. 918.

Archivos Españoles de Pediatria, Madrid

September, 1918, **2**. No. 11

91 *Defective Development of the Blood. G. Pittaluga.—p. 513.
92 *Mercurial Injections in Children. E A. Sainz de Aja.—p. 530.
93 Pouch in Buttocks Opening into Rectum. Juaristi.—p. 533.

91. **Defective Development of the Blood.**—Pittaluga's classification of blood diseases has been widely adopted, especially his term hemodystrophies. This represents the group of cases in which the biochemical abnormalities predominate over the histopathologic, and a neuropathic factor is manifest, either directly or through the mediation of the glands with an internal secretion. A hereditary influence is also apparent, congenital and familial factors intervening either directly or indirectly. The group contains the so-called hemorrhagic diatheses, purpuras, scurvy, hemophilia, paroxysmal hemoglobinuria, and hemolytic jaundice. These hemodystrophies may be classified further as frankly congenital or inherited, such as hemophilia; those depending on dietetic or toxic action or deficiencies, such as scurvy, and those due to some virus. In hemophilia there seems to be both a delay in the coagulation process and a special fragility of the walls of the vessels. Pittaluga has encountered a number of cases in which inherited syphilis was clearly a factor in this generalized lesion of the media and intima coat of the vessels, both aplasia and degenerative processes being evident. The influence of inherited syphilis in the pathogenesis of the exudative diathesis and the eosinophilic diathesis has not been appreciated hitherto. The clearing up of these problems is in the hands of the pediatrists. They can investigate the heredity and bring light to bear on the etiology of many constitutional diseases, and above all on what may be called the hemodystrophic states. Polycythemia and chlorosis have their foundations laid before puberty, although they may not develop until later. All these hemodystrophies testify to the close connection between the blood-producing organs and the endocrine system, and to the transmission of this connection to the offspring, along with its reflected alterations in the nervous system. All this field lies open to the pediatrists more than to any one else.

92. **Mercurial Treatment of Infants.**—De Aja lauds the efficacy of a few harmless injections of mercuric benzoate (benzoato de mercurio), 1 mg. per kg. of weight, twice a week, as a means of treating syphilis in infants. It has a dual action, both as mercury and as a benzoate, modifying favorably any lesions in the liver and respiratory apparatus. For infants over a year old, the injection can be of 0.5 to 1 cg. twice a week. He makes the injection in the back, near the spine, as deep as possible, massaging afterwards. Of course this technic is for exceptional use only; inunctions are more convenient, but it has its special field when other methods fail and arsenical preparations cannot be used, or when mercury is required besides.

Brazil-Medico, Rio de Janeiro

Oct. 5, 1918, **32**, No. 40

94 Flagellate Parasites. IX. O. O. R. da Fonseca.—p. 313.
95 Gregarinas. G. Hasselmann.—p. 314.
96 *Treatment of Trichomoniasis. U. Paranhos.—p. 314.

Oct. 12, 1918, **32**, No. 41

97 Further Research on Gregarinas. XII. C. F. Pinto.—p. 321.

96. **Trichomoniasis.**—Paranhos has been testing various means to rid the bowels of the *Trichomonas hominis* which is not rare in his region in Brazil. Flushing the intestines with a 1 per thousand solution of iodin proved effectual but too inconvenient for general use. A complete cure was realized, however, without untoward by-effects, by a course of methylene blue, 0.2 gm. taken in a capsule every morning, fasting. This amount is tolerated for many weeks, and a sodium sulphate purge, once a week, shows when the parasites have disappeared. All his patients were cured in eight weeks, and none of the parasites have been found in the stools during the months since. Castellani has reported similar success with it in such cases.

Cronica Medico-Quirurgica, Havana

August, 1918, **44**, No. 8

98 Rabies in Cuba. J. S. and F. M. Fernandez.—p. 445.
99 Panspermia and Heterogenesis. A. P. Milice.—p. 452.

Gaceta Medica de Caracas

Oct. 15, 1918, **25**, No. 19

100 *Ambard's Ureosecretory Coefficient from the Standpoint of Anesthesia. L. Razetti.—p. 197; Lobo.—p. 199.
101 *Organization of Campaign against Venereal Diseases. L. Razetti.—p. 199; Risquez and others.—p. 203.
102 Effect of Chloroform on the Heart. E. Fernández.—p. 205.
103 *Idiosyncrasy to Antipyrin Salicylate. E. P. de Bellard.—p. 208.

100. **Ambard's Ureosecretory Coefficient.**—Razetti reaffirms that not even Ambard's formula has proved the long sought index of conditions which will permit general anesthesia and a major operation without special risks.

101. **Campaign Against Venereal Disease.**—These communications relate what has been done in this line in other countries, and propose measures to be adopted in Venezuela. At the close of the discussion the Academia Nacional de Medicina voted resolutions calling on the National Public Health Service to organize free dispensaries for the venereal diseases, separate for the sexes, with private and public conferences, instructions in various centers, circulars, etc., to educate the public to apply to these dispensaries. If these measures fail, extreme measures of compulsion may become necessary. Medical inspection of places and centers where venereal diseases are known to be prevalent, is also advised, and the discreet gradual registration of all prostitutes. The resolutions concluded with the offer of the individual and the collective aid, private and official, of the members of the Academia de Medicina, to help in the prophylaxis of venereal diseases.

103. **Idiosyncrasy to Antipyrin Salicylate.**—De Bellard prescribed a few doses of antipyrin salicylate, each 0.75 gm.,

for a colored man of 40 who complained of pains in certain muscles. The first dose caused burning and edema to such an extent that it seemed that a caustic had been taken by mistake. By the next day the lips and mouth looked as if lined with yellow cotton, and in two days the tissue affected was cast off, the cheeks, lips, gums and pharynx being thus denuded, and the whole course of the esophagus smarted and there was also pain in the epigastrium, whenever the man took any water or milk, the only things allowed. The ulceration was apyretic and healed in the course of two weeks without leaving a trace. Two years before the man had had a similar experience, also after a single dose of antipyrin salicylate, but the connection with the drug was not suspected at that time. To convince the man that the trouble was in him and not in the drug, Bellard and the man's wife took some of the powders before him, with no appreciable by-effects.

Prensa Medica Argentina, Buenos Aires

Sept. 30, 1918, **5**, No. 12

104 *Spastic Closure of Gastro-Enterostomy Opening. C. B. Udaondo. —p. 118.
105 *Effect of Alcohol on Nerve Centers. A. Jones.—p. 120.

Oct. 10, 1918, **5**, No. 13

106 *Pathogenesis of Alcohol Intoxication. V. Ducceschi.—p. 125.
107 *Plastic Motor Operations. G. B. Arana.—p. 126. Commenced in No. 12, p. 113.
108 Case of Senile Dwarf Growth. (Progeria.) J. Orrico.—p. 133.

104. **Spastic Closure of Gastro-Enterostomy for Pyloric Ulcer.**—Udaondo reports two typical instances of this. The gastro-enterostomy had put an end to years of suffering but in time the new opening contracted spasmodically so that the old train of symptoms returned. They are the only instances of the kind he has encountered in seventy-one operative cases of pyloric ulcer, although a number of them presented the clinical picture of vagotony with gastric hypertony. In his first patient, a man of 47, an exploratory operation and gastro-enterostomy on two different occasions gave relief for five years, and then the symptoms and radioscopy showed complete occlusion of the new opening. Under a course of atropin, clinically normal conditions were restored for a year when he succumbed to pneumonia. Necropsy showed one of the new openings entirely permeable. In the other case the man of 34 presented miosis, slight bradycardia, hyperchlorhydria and colonic spasm. Under daily injection of 1 mg. of atropin, all disturbances ceased in two days except for a slight burning which yielded to an alkaline. In less than two weeks the gastro-enterostomy opening was working perfectly, and there has been no further disturbance during the months since. In conclusion Udaondo remarks that the vagus and sympathetic systems are not so strictly selective as some believe. They might react indiscriminately to certain other drugs.

105. **Effect of Alcohol on Nerve Centers.**—Jones gives illustrations of the histopathology of alcoholism. Alcoholism may be assumed, he remarks in conclusion, when besides the lesions of chromatolysis in the third layer of large pyramidal cells of the brain, there is dilatation or congestion of the capillaries, thickening of the meninges, without leukocyte infiltration, and small hemorrhages.

106. **Pathogenesis of Alcohol Intoxication.**—Ducceschi has been continuing his research on the cholesterol and lecithin content of the blood of dogs kept under the action of alcohol. He here announces that besides the unusually high content of the blood in cholesterol and lecithin, the neutral fat of the blood is also increased. There seems to be an actual mobilization of the lipoids, a lipoidolysis, which may be a defensive function on the part of the organism.

107. **Plastic Motor Surgery.**—Arana reproduces a large number of illustrations of what has been done in this line in Italy and elsewhere, and describes five cases in which he has operated to provide volitional control of the artificial limb or prosthesis. There are forty-one illustrations in all. He relates that since the legislation on workmen's compensation two years ago, the amputated at Buenos Aires who would be proper subjects for this kinematic surgery, refuse to permit any operation which might reduce their incapacity as this would cut into their pension. In one of the cases the "key loop" was unintentionally provided. The hand had been amputated at the carpometacarpal articulations, and the carpus acts like a hook to grasp objects. The play of the flexor and extensor muscles gives here a power of 20 kg. with an excursion of 3 cm. In another case the arm had been amputated at the elbow at the age of 3, and the man of 33 now has powerful muscular control of the stump, the olecranon being drawn up by the muscles to form a useful hook or key with which objects are seized. He steadies them by holding them against his chest. Excursions of 5 cm. are possible. Arana tried to devise prosthetic apparatus to utilize these kinetic forces, and has succeeded in this case in providing an artificial hand and arm which is able to lift 2.5 kg. and is capable of excursions up to 2 cm. One illustration shows him lifting a glass of water with his "kinematic hand." The amputations in the other cases were in the upper third of the arm or shoulder. An Indian plastic flap was used to cover the pectorobicipital loop in each case.

Repertorio de Medicina y Cirugia, Bogotá

October, 1918, **10**, No. 1

109 *Prophylaxis of Tuberculosis. L. F. Angel.—p. 8.
110 *Epidemic of Diphtheria. G. Marquez.—p. 30.
111 Metabolism in Diabetes. E. Gomez.—p. 37.

109. **Prophylaxis of Tuberculosis.**—Angel relates that the first legislation in regard to tuberculosis in Colombia dates from 1916. The public health service was then reorganized and a subsidy of $30,000 was appropriated to establish antituberculosis dispensaries in various centers of population where the local authorities aid in the work. The law provides for isolation of the tuberculous in special departments of hospitals and prisons. Angel insists, however, that the best prophylaxis of tuberculosis is by medical inspection in the schools, and segregation of the weakly and backward in a special school where they could be trained in body and mind to approximate normal. If legislators realized the importance of these schools for bringing those predisposed to tuberculosis safely through the dangerous years, great progress would be realized in stamping out tuberculosis at the source. It requires the teaching of hygiene by physicians, individual effort, and direction by the state. He speaks as if medical inspection of schools in Colombia had not yet been realized, but this he regards as the keystone of progress in this line, especially when supplemented by special schools for the abnormal.

110. **Diphtheria at Bogotá.**—Marquez remarks that diphtheria in Colombia does not seem to be as grave a disease or as contagious as elsewhere, but it has been growing more contagious in recent years. One peculiarity of diphtheria in Bogotá has been that it seemed to be restricted to well-to-do families. He knows of only three cases among children of the dispensary class.

Revista de Medicina y Cirugia, Havana

Nov. 25, 1918, **23**, No. 22

112 *Papillomas on Vocal Cords. J. M. Penichet.—p. 615.
113 Epidemic Influenza. L. Ortega.—p. 619.

112. **Papillomas on the Vocal Cords.**—The boy of nearly 4 was brought to the clinic almost suffocating, and syncope followed attempts to examine the throat, compelling artificial respiration and heart stimulants. Then tracheotomy was done and the papillomas were cauterized with 2 per cent. silver nitrate. The child expelled scraps of the papillomas from time to time but it took nearly a year and a half before the child began to speak normally. The tracheotomy opening is to be closed now.

Revista de Medicina e Cirugia Practicas, Madrid

Sept. 28, 1918, **120**, No. 1524

114 *Retention of Placenta from Local Contraction. F. Venegas.—p. 353.

Oct. 7, 1918, **121**, No. 1525

115 Hypochondriac Psychasthenia. R. del Valle y Aldabalde.—p. 5.

Oct. 14, 1918, **121**, No. 1526

116 Acute Accidents in Chronic Partial Intestinal Occlusion. J. Blanc. —p. 33.

114. **Retention of Placenta from Isolated Contraction.**—Venegas has had this mishap occur four times in three cases.

Part of the placenta was held firm by an isolated ringlike contraction of the uterine wall above it. The only means to dislodge it proved to be to work one and then two fingers into this tight ring and gradually stretch it until the contracture was overcome. Then there was no further trouble.

Semana Medica, Buenos Aires

Sept. 19, 1918, **25**, No. 38

117 *Cataphrenias. A. Austregésilo.—p. 365.
118 Uterine Fibromas. C. A. Castaño.—p. 371.
119 Spinal Anesthesia. G. Palacios.—p. 377.
120 *Comparison of Pubiotomy and Symphysiotomy. T. A. Chamorro.—p. 378.

117. **Cataphrenias.**—By this term Austregésilo defines a state of mental debility of the dementia type. It differs from dementia, however, in that it may retrogress and complete recovery ensue. He has had a number of patients of this type, the diagnosis wavering between dementia praecox, chronic mental confusion and manic depression, and insanity of the confusional or stupid form, but by the end of six months to three years the marked improvement or complete cure upset all his theories as to the nature of the psychosis. He describes a few cases, all in young men and women, of this acquired psychic deficit which may retrogress or may progress to actual dementia praecox, chronic mental or catatonoid manic-depressive insanity.

120. **Pubiotomy and Symphysiotomy.**—In this eighth installment of Chamorro's clinical and surgical comparison of these operations, he discusses the technic for the wholly and partially subcutaneous method, and warns of every point liable to cause difficulty. He also describes how to manage the case to ensure spontaneous delivery.

Siglo Medico, Madrid

Sept. 14, 1918, **65**, No. 3379

121 Pituitary Treatment. R. B. de Bengoa.—p. 749.
122 *Structure of Visual Organs of Certain Insects. S. R. Cajal.—p. 753.

122. **Visual Organs of Insects.**—Cajal's research has convinced him that the facetted eyes of insects serve for perception of color and for vision during the day, while the ocellus eye is an organ hypersensitive to light, and is depended on to guide the insect in the dark.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 12, 1918, **2**, No. 15

123 *Racemose Aneurysm on the Head. W. Noordenbos and R. de J. de Jong.—p. 1224.
124 *Gastro-Enteritis of Unknown Origin. K. Wassenaar.—p. 1235.
125 Electricity in Examination of Children. H. A. Stheeman.—p. 1237.
126 Case of Habitual Subluxation of Knee. J. H. Engelkens.—p. 1241.

123. **Racemose Aneurysm of the Head.**—The case reported was remarkable in the extent of the area of the scalp covered by the cirsoid aneurysm, also in the successful operation, and in the microscopic examination of the aneurysm tissue immediately after its removal. The patient was a man of 34. At 17 he had applied for excision of a small tumor on the previously normal scalp, but as the tumor was found pulsating, the excision was refused until, at 34, the tendency of the aneurysm to bleed spontaneously compelled intervention. The operation was done in one sitting after ligation of the external carotid and frontal arteries on both sides, under local anesthesia, with epinephrin, the patient seated. Catgut was passed around each of the afferent vessels and tied over a roll of gauze. The pictures show ten of these little rolls of gauze on one side of the scalp, one at the root of the nose, one exactly opposite at the back of the head, one just above the ear, and the others scattered in series along the course of the arteries. Inside this crown of gauze rolls the main aneurysm was excised, the skull and periosteum being found normal. There was no hemorrhage except from two small arteries in the periosteum, which was easily controlled. There was no fever or suppuration, and the gauze rolls and catgut were removed the ninth day. By this time the whole network of vessels on the scalp had subsided. A few weeks later the defect in the skull was covered with Thiersch flaps, the whole intervention a complete success. In some of the cases on record the attempt to save part of the scalp in the aneurysm region proved disastrous as the tissues are pathologic and friable. Several who tried to operate without the preliminary ligation of the carotid had grave hemorrhages. In one case the patient was unable to leave the hospital for seven months. The common carotid cannot be ligated for the purpose. After removal of the main tumor in the case reported, the afferent vessels had disappeared without a trace by the ninth day.

124. **Epidemic of Gastro-Enteritis.**—Wassenaar describes an epidemic of abdominal pain and other gastro-intestinal disturbances affecting 500 of the 6,500 Belgian refugees in a certain camp. Only five died, but their deaths were sudden. No cause could be discovered unless the whole trouble is accepted as a gastro-intestinal form of influenza.

Hygiea, Stockholm

Oct. 31, 1918, **80**, No. 20

127 Successful Operative Case of Cardiospasm with Dilatation of the Esophagus. E. Lindström.—p. 1169.

Ugeskrift for Læger, Copenhagen

Oct. 31, 1918, **80**, No. 44

128 *Habitual Constipation VII. T. E. H. Thaysen.—p. 1729. Conc'n.
129 *Influenza and Pulmonary Tuberculosis. G. E. Permin.—p. 1739.
130 *Influenza and the Copenhagen Medical Society. V. Bie.—p. 1741.
131 *Fatal Cocain Poisoning. W. Møller.—p. 1743.

128. **Habitual Constipation.**—Thaysen concludes his seventh study of this subject with the statement that rectum constipation formed 60 per cent. of the 125 cases of which he has been making a special roentgen study. He emphasizes that it is important for treatment to know whether the colon or the rectum is the seat of the disturbance, and especially whether the ascending colon is involved or not.

129. **Influenza and Pulmonary Tuberculosis.**—Permin analyzes forty-five recent cases of influenza occurring in persons with pulmonary tuberculosis. All phases were represented and in some the tuberculosis was evidently aggravated but in quite a large proportion the intercurrent influenza has apparently harmlessly subsided. In eight other cases the first symptoms of tuberculosis developed after a recent attack of influenza. His practical conclusion is that the tuberculous must avoid infection with influenza with the strictest care, keeping away from contacts and poorly ventilated rooms, etc. There is reason to assume that the effect of the influenza will become more apparent in the course of the winter on persons with mild tuberculosis, and provision must be made for institutional care of an unusually large contingent of the tuberculous in the next few months.

130. **The Copenhagen Medical Society and the Epidemic.**—Bie records with great satisfaction the thorough organization of the Copenhagen Medical Society to handle the epidemic of influenza, with the aid of volunteer motor car drivers, visiting nurses and women to help them, and financial and other support from the city authorities. The school kitchens were utilized to prepare food for the sick, and volunteers distributed it. One of the newspapers collected a subscription which was given to the medical society, enabling the members to relieve pressing needs as they met them, and this without public charity. Enough of the money is left to organize some convalescent homes which will fill a great want. On the whole, the systematic organization of the medical society in this emergency has worked with surprising smoothness and efficiency both for physicians and the sick.

131. **Fatal Cocain Poisoning.**—The man of 52 died on the table after local anesthesia for a herniotomy, and it was found that a 10 per cent. solution of cocain had been injected by mistake instead of the supposed 2 per cent. novocain solution. The bottles were kept on the same shelf, with the same size, shape and color of label, and Møller protests against this practice, urging that dangerous substances should be kept in special vials. The sudden death had been inexplicable at first, the convulsions, clonic spasms, cyanosis and coma proving fatal notwithstanding stimulants, artificial respiration and massage of the heart. This communication is an abstract from a Swedish journal.

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A BACTERIOLOGIC STUDY OF THE INFLUENZA EPIDEMIC AT CAMP DEVENS, MASS.

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Camp Devens had been somewhat forewarned of the impending epidemic of influenza through rumors of its existence in the naval district about Boston, so that on September 7 the admission from one company of fourteen men with ill-defined fever aroused immediate suspicion. These patients were at once isolated, and an intensive study was started on them. Blood and urine cultures were consistently negative; those from the nasopharynx were also unsatisfactory, owing to the fact that the technic employed at that time was in some respects inadequate. None of these first patients had deep enough pulmonary involvement to yield satisfactory sputum, so that it was impossible to utilize that method of diagnosis.

A detailed account of the epidemic is not within the scope of this paper. It is quite sufficient to state that the disease spread like wildfire, and that in the course of four or five days the hospital was filled with cases of the disease.

This report will deal with bacteriologic findings alone. A pathologic study has been in progress in this laboratory from the start of the epidemic. Dr. S. Burt Wolbach, to whom we are indebted for many of the postmortem cultures cited in this paper, is at present engaged in an intensive study of a limited number of necropsies, which will be reported by him at a later date.

From the beginning of the epidemic, routine "sputum typing" was as usual carried out in cases suspected of pneumonia. Freshly prepared smears of sputum and the peritoneal exudate of inoculated mice showed such a frequent occurrence of a small, gram-negative bacillus, that this organism was at once considered as a very likely etiologic factor of the disease.

This investigation includes a study of cultures from the lungs, accessory sinuses and heart's blood at necropsy; and those derived from the sputum, nasopharyngeal secretions, pleural exudates, and blood of patients acutely sick with the disease.

TECHNIC

The medium employed was 2 per cent. agar, 0.2 per cent. of normal acid, enriched with hemoglobin. This was at first secured by pouring human blood over the surface of agar plates, but it was soon found more satisfactory to use 10 per cent. defibrinated blood agar plates. By this method the colonies were found to be much more distinct, and isolation was greatly facilitated. The latter was also favored by drying the surface of the medium by the introduction of filter paper into the cover of the dish, before sterilization.

MORPHOLOGY

The gross morphology of the cultures and the microscopic appearance of the organism correspond exactly with that of the bacillus of influenza of Pfeiffer. The colonies are minute, spherical, elevated, colorless, translucent, discrete and moist. They appear along the line of inoculation, spreading only a short distance from it, and always remaining as discrete colonies. At the end of twenty-four hours they are scarcely visible and are often confused with the material that has been streaked on the surface of the medium. At the end of forty-eight hours the growth is generally well marked and is as described above. The organism is an obligate aerobe and on blood on agar plates appears only at the edge of the superimposed blood. This is another reason for adopting the blood agar plate described above.

Frequent transplantation is necessary in order to insure the viability of the culture. On an average, tubes left for one week at room temperature have been found sterile. Of thirty-eight cultures shipped by mail from this laboratory to the Army Medical School in Washington, only two failed to grow on reinoculation.

Artificial enrichment of mediums by the growth of *Staphylococcus aureus* was attempted according to Besson. The addition to the mediums of dead cultures of such organisms not only did not promote growth of *B. influenzae*, but apparently caused a retardation. When, however, *Staphylococcus aureus* was streaked across a plate already impregnated with *B. influenzae*, the latter showed a marked increase in growth in the immediate vicinity of *S. aureus* streaks, large colonies being evident in from eighteen to twenty hours.

Similar results were obtained by the symbiotic action of *B. subtilis*, effected by connecting the two culture tubes, separately impregnated, by a short rubber tubing.

Microscopic Morphology.—The organism is a minute, gram-negative bacillus, varying in length from coccoid to filamentous forms. The older cultures show a marked pleomorphism. The organism decolorizes with gram stain. Polarity is evident especially with methylene blue and dilute carbolfuchsin.

PATHOGENICITY

More than a hundred intraperitoneal injections of mice have shown that the organism is not pathogenic to that animal.

Two sets of experiments have failed to reveal evidence of pathogenicity of this organism to guinea-pigs, either from intraperitoneal or from intravenous injection. For all injections the following technic was employed: *B. influenzae* was grown on blood agar slants in 75 by 10 mm. tubes for forty-eight hours. To each slant was added 1 c.c. of sterile saline solution and a uniform mechanical suspension obtained.

The rabbit was considered as the best animal for the production of antiserums, and for this purpose three methods were employed, all being controlled by two animals, and by parallel animals not inoculated. One set of animals received intraperitoneal injections, one intravenous, and the last intratracheal insufflations. All animals were isolated, except as noted, and carefully watched. Temperatures were taken twice daily. In every instance there was an initial rise of temperature much more prompt in its appearance in the intravenous and insufflation experiments than in the intraperitoneal. This temperature, which ranged between 104 and 106 F., persisted for from twelve to thirty-six hours, generally falling to normal gradually. (The normal has been considered to be between 101.5 and 103.5 F.)

Necropsy has failed to show evidence that any disease process, similar to that produced by B. *influenzae*, resulted from these experiments.

Only two of the animals have been sick. Rabbit 7—or Insufflation 1—developed a coryza twelve hours after the introduction into the trachea by direct operation of 0.5 c.c. of suspension of pure culture of *B. influenzae*. The purulent secretion from the nose showed a pure growth of *B. influenzae*.

A healthy rabbit was placed in the same cage with this infected animal for four days, but has remained healthy up to the present time.

Rabbit 7 was etherized, bled, and killed five days after insufflation. The trachea showed extensive injection of the mucous membrane, which was covered as far as the bifurcation with dirty mucosanguineous secretion. Smears and cultures from this area were negative. The lungs showed no evidence of pathologic involvement. The parallel insufflation experiment on Rabbit 8 was negative except for the immediate reaction, described above, following two insufflations, the latter of 2 c.c. of suspended culture. Rabbit 5, two days following the third intraperitoneal injection (of 1.5 c.c. culture), developed a temperature of from 106 to 106.2 F. and rapid and labored breathing. These symptoms persisted for two days. At that time the animal was etherized and bled for serologic purposes. This rabbit died three days following this operation. Necropsy revealed no gross pathologic condition except an extensive hemopericardium, the result of repeated heart punctures. The tissues are now being prepared for microscopic examination; but it seems very remote to expect any pathologic change as a result of inoculation. From these experiments it is evident that no typical pathologic lesions have been produced in the rabbit by injections of *B. influenzae*.

BACTERIOLOGIC FINDINGS

In the work about to be described, the presence of *B. influenzae* in the smear alone has always been thought inconclusive. It has always been considered necessary to isolate the organism in pure culture to warrant a report of positive findings. The influenza bacillus has been isolated from the sputum in 104 cases. It was first recovered from blood agar subcultures of the peritoneal exudate and heart's blood of mice inoculated with sputum according to the method advised by Blake[1] for the typing of pneumococci. It was found, however, that it was not necessary to resort to this device to secure a culture, unless it was desired to ascertain the presence of a mixed pneumococcus infection, for the careful inoculation of a blood agar plate with washed fresh sputum yielded positive results in a surprising number of attempts.

It was felt from the very beginning of this work that, although *B. influenzae* was so frequently present in this epidemic, mixed infection played a very important rôle in the progress of the complicating pneumonias. For this reason the routine sputum typing was continued and the results are of considerable interest (Table 1). Too much weight should not, of course, be placed on the occurrence of a mixed infection with Type IV pneumococcus; that with Types I, II and III and with *Streptococcus hemolyticus* is of great interest. The therapeutic importance of such an infection has been considered in a previous report by one of us (L. H. S.[2]).

TABLE 1.—OCCURRENCE OF INFLUENZA BACILLI IN ASSOCIATION WITH PNEUMOCOCCI AND OTHER ORGANISMS IN SPUTUM

	No. of Times
With Pneumococcus Type I	5
With Pneumococcus Type II	2
With Pneumococcus Type II (subgroup)	1
With Pneumococcus Type III	5
With Pneumococcus Type IV	52
Pneumococci, rare or absent	25
With Streptococcus hemolyticus	2
Total	92
B. influenzae cultivated directly	12
Total B. influenzae cultures from sputum	104

Nasopharyngeal swabs were made in a few fresh cases shortly after the epidemic had reached its height. They were positive in seven out of ten trials. In the later stages they were positive in four out of eight cases—a total of eleven positive cultures.[3]

PLEURAL FLUID CULTURES

Similar results have been found on cultivating pleural fluids in cases of empyema complicating the pneumonias of this epidemic. They are presented in Table 2, from which it will be seen that eight times the influenza bacillus has been isolated from chest fluids: twice alone and six times in conjunction with other organisms.

TABLE 2.—OCCURRENCE OF ORGANISMS IN PLEURAL FLUID CULTURES

	No. of Times
Pneumococcus Type I	11
Pneumococcus Type II (subgroup)	5
Pneumococcus Type III	2
Pneumococcus Type IV	7
	25
Streptococcus hemolyticus	3
B. influenzae (pure)	2
B. influenzae and Streptococcus hemolyticus	2
B. influenzae and pneumococcus	4
No growth (serous)	8

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[1] Blake, F. G.: J. Exper. Med. **26**: 67, 1917.

[2] Spooner, L. H.; Sellards, A. W., and Wyman, J. H.: Serum Treatment of Type I Pneumonia Occurring in Association with an Epidemic of Influenza, J. A. M. A. **71**: 1310 (Oct. 19) 1918.

[3] For this technic and for suggestions in cultural methods we are indebted to Capt. Oswald T. Avery, M. C., U. S. Army.

BLOOD CULTURES

The blood of pneumonia patients has been cultivated during the past month as systematically as possible; 118 cultures were taken, with twenty-eight, or 24 per cent., positive cultures, and ninety, or 76 per cent., negative cultures. The pneumococcus was found in twenty-seven, and *Streptococcus hemolyticus* in one. The character of the organisms isolated is presented in Table 3, which covers the height of the epidemic and from which it will be seen that in no instance could *B. influenzae* be recovered from the blood, but that a slightly higher percentage of positive pneumococcus cultures was obtained than was found previously in this laboratory.

TABLE 3.—OCCURRENCE OF ORGANISMS IN BLOOD CULTURES

	No. of Times
Pneumococcus Type I	10
Pneumococcus Type II	7
Pneumococcus Type III	1
Pneumococcus Type IV	9
Streptococcus hemolyticus	1
Total	28

POSTMORTEM CULTURES

During the early days of the epidemic it was often impossible to devote as much attention to a careful study of the bacteriology of necropsies as would have been desired under other circumstances. Many of the necropsies were performed so many hours postmortem that such cultures were not taken, because it was felt that they would have been worthless. Also during the busier times it was impossible to type the pneumococci isolated from the blood and other sources.

For this reason it is possible to report only thirty-seven cases which have been studied thoroughly enough to warrant their admission as reliable evidence. In all cases the organisms have been recovered in pure culture and their identity proved by cultural characteristics and microscopic morphology and staining reaction.

TABLE 4.—OCCURRENCE OF ORGANISMS IN CULTURES OF HEART'S BLOOD AND LUNGS

Necropsy	Heart's Blood	Lungs
162	Pneumococcus	Pneumococcus, B. influenzae
164	No growth	Pneumococcus
165	Pneumococcus, Streptococcus hemolyticus	Pneumococcus
166	No growth	Pneumococcus
174	Pneumococcus I	B. influenzae
176	Pneumococcus I	B. influenzae
180	Pneumococcus	B. influenzae
183	Pneumococcus II	B. influenzae
187	No growth	Streptococcus hemolyticus
190	No growth	No growth
191	B. influenzae	No growth
192	Pneumococcus IV	B. influenzae
193	No growth	No growth
194	Streptococcus hemolyticus	Streptococcus hemolyticus, B. influenzae
195	Pneumococcus IV	B. influenzae
197	Pneumococcus II	Pneumococcus II, B. influenzae
198	No culture	B. influenzae
199	No growth	Pneumococcus
201	Streptococcus hemolyticus	No growth
202	Pneumococcus IV	B. influenzae
203	Pneumococcus IV	Streptococcus hemolyticus, B. influenzae
204	Pneumococcus IV	No growth
207	Pneumococcus II	Pneumococcus II
211	Pneumococcus IV	Pneumococcus IV, B. influenzae
213	Pneumococcus II	B. influenzae
214	Pneumococcus I	B. influenzae, Pneumococcus
215	Pneumococcus I	No growth
216	No growth	No growth
218	Pneumococcus IV	B. influenzae
220	Pneumococcus IV	Streptococcus hemolyticus, B. influenzae
222	Streptococcus hemolyticus	Pneumococcus
224	No growth	B. influenzae
229	Pneumococcus IV	B. influenzae, Staphylococcus aureus
230	Pneumococcus III	B. influenzae, Streptococcus hemolyticus
231	No growth	B. influenzae
232	No growth	B. influenzae
234	Pneumococcus II	B. influenzae, Pneumococcus II, Streptococcus viridans

Table 4 shows the result of heart's blood and lung cultures; the former taken by a pipet into nutrient broth, the latter from the seared lung on the surface of blood agar plates.

The great significance of *B. influenzae* as an etiologic factor of the pneumonia in this epidemic may not be clearly brought out by Table 4, which shows the preponderance of organisms found in all lobes of the lungs at each necropsy. It is very significant, however, that *B. influenzae* was found in pure culture in at least one lobe in sixteen of thirty-seven necropsies. The necessity of early necropsy is shown by the fact that successful attempts to isolate the organism resulted twenty times when examination was made less than five hours postmortem, and in only three when a greater time had elapsed.

It will be seen that *B. influenzae* has been recovered from the lung in twenty-three necropsies. The occurrence is given in Table 5.

TABLE 5.—OCCURRENCE OF ORGANISMS IN THE LUNG

	No. of Times
B. influenzae (predominant)	14
B. influenzae and pneumococcus	4
B. influenzae and Streptococcus hemolyticus	3
B. influenzae and Staphylococcus aureus	1
B. influenzae, streptococcus viridans and pneumococcus	1
Streptococcus hemolyticus	1
Pneumococcus	6
Negative	7
Total	37

B. influenzae occurred alone or with other organisms in twenty-three, or 62 per cent., of thirty-seven cases.

In addition, *B. influenzae* has been recovered from the frontal sinus in four cases; from the sphenoidal sinus in eight, and from the middle ears in two. These occurred in the manner shown in Table 6.

TABLE 6.—OCCURRENCE OF ORGANISMS IN FRONTAL SINUS, SPHENOIDAL SINUS AND MIDDLE EARS

	Frontal Sinus	Sphenoidal Sinus	Middle Ears
B. influenzae	2	2	..
Pneumococcus	..	1	..
B. influenzae and [illegible]	2	3	1
B. influenzae, pn[illegible] catarrhalis	..	1	1
B. influenzae and [illegible]	..	1	..
B. influenzae, Stre[illegible] pneumococcus	..	1	..

Although the lung cultures were carefully studied in only thirty-seven necropsies, blood cultures were made in eighty during the epidemic, the results of which are given in Table 7.

TABLE 7.—OCCURRENCE OF ORGANISMS IN BLOOD CULTURES

	No.	Per Cent.
Total cultures	82	....
Pneumococcus [illegible]	20	....
Pneumococcus [illegible]	7	....
Pneumococcus [illegible]	13	....
Pneumococcus [illegible]	2	....
Pneumococcus [illegible]	10	....
Total [illegible]	52	65.0
Strept[illegible]	6	7.5
B. influ[illegible]	2	2.5
Staphylococcus	1	....
[illegible]	1	....
[illegible]	20	25.0

(Two cultures showed two organisms.)

It is well recognized that *B. influenzae* is difficult to isolate from the heart's blood; but the high percentage (65 per cent.) of pneumococci found at this time shows the importance of mixed infection.

It is the object of these figures to show that, although *B. influenzae* is present in frequency enough to warrant the statement that it was the most important etiologic factor of this epidemic, yet considerable importance must be placed on the secondary invaders, the pneumococcus and in this hospital rarely the *Streptococcus hemolyticus*, which are found in such a large percentage of cases examined, both during life and postmortem.

SEROLOGIC INVESTIGATION

Macroscopic agglutinations have been performed on various individuals, at first with homogeneous serum and later with heterologous serum. The technic employed was as follows: A uniform moderately turbid suspension of *B. influenzae* was obtained from washing the surfaces of forty-eight hour blood agar slant cultures. Dilutions were made ranging from 1 : 2 to 1 : 800 in agglutinating tubes, which were incubated in the water bath at 37 C. for from twelve to eighteen hours. It was found that readings were facilitated by placing the tubes after incubation in the ice box for from four to six hours. Saline controls were run at the same time. A distinct but fine flocculent precipitate was read as +; heavier and coarser precipitate as ++, and large masses of agglutinated organisms as +++. Tables 8 and 9 are illustrative of the fact that the formation of agglutinins takes place gradually after the disease and that there is no strong evidence to favor a variety of strains of *B. influenzae,* since no difference in titer of the most potent serums was found with either homogeneous or heterologous cultures. It is interesting to note the frequency of negative readings in low dilutions in serums that show a high titer. A series of controls, taken from members of the staff of this laboratory, showed no natural agglutinin for this organism.

TABLE 8.—HUMAN AGGLUTINATION REACTIONS

No.	Control	1:2	1:5	1:10	1:20	1:50	1:100	1:200	1:400	1:800
				Group I—One Week after Onset						
1	—	—	—	++	+++	—	—	—	—	—*
2	—	—	—	—	—	—	—	—	—	—*
3	—	—	—	—	—	+++	—	—	—	—*
4	—	—	++	++	+++	+	+	+	—	—*
5	—	—	+	++	+++	++	+	—	—	—*
				Group II—Four Weeks after Onset						
6	—	+++	+++	++	++	+	—	—	—	—†
7	—	++	++	++	++	+	—	—	—	—†
8	—	++	++	++	++	+	+	+	—	—†
9	—	++	++	+	+	—	—	—	—	—†
10	—	—	—	—	—	—	—	—	—	—†
11	—	+++	++	++	++	++	+	—	—	—†
12	—	—	—	—	—	—	—	—	—	—†
				Group III—Five Weeks after Onset						
13	—	+++	+++	+++	+++	++	+	+++	++	++*
14	—	++	++	+++	+++	++	+	+	—	—*
15	—	—	++	++	++	+++	++	+++	+++	+++†
16	—	—	—	++	+++	+++	+	+++	+++	+++†
17	—	—	—	+	+++	+++	++	+	+++	+†
18	—	—	+++	+++	+++	+++	++	—	—	—†
19	—	+	+++	+++	+++	+++	++	++	+++	+++†
20	—	++	++	+++	+++	—	—	+++	+++	+++†
				Group IV—Healthy Controls						
21	—	—	—	—	++	—	—	—	—	—†
22	—	—	—	—	—	—	—	—	—	—†
23	—	—	—	—	—	—	—	—	—	—†
24	—	—	—	—	—	—	—	—	—	—†
25	—	—	—	—	—	—	—	—	—	—†
26	—	—	—	—	—	—	—	—	—	—†
27	—	—	—	—	—	—	—	—	—	—†

* Homogeneous culture † Heterologous culture.

Even more striking results are shown in the agglutinin reactions in rabbits at varying stages of their "immunization" with living cultures. In the later titrations the lower dilutions have been omitted.

Very unsatisfactory results have come from a few efforts to demonstrate specific precipitins and bacteriolytic substances, although the results are encouraging enough to warrant further study.

COMMENTARY

It is perfectly obvious that it is impossible to prove the etiologic factor of a disease when, with the best available technic, the organism in question is not, strictly speaking, "constantly present" in the lesions, and when it is impossible to reproduce the disease in lower animals by inoculation.

It seems reasonable to suppose that the prime factor in this epidemic was *B. influenzae,* since it was found in such a large proportion of specimens of sputum when the latter was derived from the lower air passages and was properly examined; since the organism was recovered from lungs postmortem in 62 per cent. of those cases carefully studied, and in pure culture from at least one lobe in 50 per cent. of the same series; and since the blood of patients convalescent from the disease showed a rising agglutinating power not only to their own organism, but also to heterologous cultures.

The following points must be borne in mind in any study of this organism: The demonstration of organisms morphologically similar to *B. influenzae* in smears is insufficient for diagnosis, but such organisms must be cultivated in pure culture on hemoglobin mediums, and subsequent transplants on hemoglobin-free mediums must show no growth.

Although the organism grows better in symbiosis with other organisms, especially the staphylococcus, there is great danger of overgrowth.

Care should be taken not to discard cultures as negative, since in many instances appreciable growth does not appear until after from forty-eight to seventy-two hours' incubation.

TABLE 9.—RABBIT AGGLUTINATION REACTION

	Control	1:2	1:5	1:10	1:20	1:50	1:100	1:200	1:400	1:800	1:1,600	1:3,200	1:6,400	1:13,000	Nature of Culture
						Rabbit 5: Intraperitoneal Injection									
10/23/18, 6 days following 1st injection......	—	+++	+++	+++	+	++	+	++	++	+	......	......	......	......	Homogeneous
	—	+++	+++	+++	+++	+++	++	++	+	+	......	......	......	......	Heterologous
10/29/18, 6 days following 2d injection.......	—	......	......	—	—	—	+	++	++	+	++	++	......	......	Homogeneous
11/2/18, 4 days following 3d injection.......	—	......	......	++	......	......	+++	+++	+++	+++	+++	+++	+++	+++	Heterologous
						Rabbit 6: Intravenous Injection									
10/23/18, 6 days following 1st injection......	—	+++	+++	+++	++	++	++	—	—	—	......	......	......	......	Homogeneous
	—	+++	+++	+++	++	++	+	—	—	—	......	......	......	. ....	Heterologous
10/29/18, 4 days following 2d injection.......	—	......	......	++	++	++	+++	+++	++	++	++	+++	......	......	Homogeneous
11/2/18, 8 days following 2d injection.......	—	......	......	+++	......	......	+++	+++	+++	+++	+++	—	......	......	Heterologous
						Rabbit 4: Control									
10/23/18................	—	—	—	—	—	—	—	—	—	—					
						Rabbit 11: Control									
10/23/18................	—	—	—	—	—	—	—	—	—	—					

The direct smear method is of value in indicating what may be expected in culture. The most striking fact in regard to such preparations lies in the great frequency of intracellular *B. influenzae.*

Too great stress cannot be laid on the absolute necessity of immediate necropsies if one is anxious to recover this organism, before overgrowth renders such results impossible.

CONCLUSIONS

1. *B. influenzae* has been isolated from pneumonia sputum, pleural fluids, and the nasopharynx during life, and from the heart's blood, lungs, and accessory sinuses postmortem in a high percentage of cases of this disease, very frequently in pure culture.
2. Specific agglutinins have been found in the serum of convalescents which produce satisfactory reactions, especially during the weeks following infection, on homogeneous and heterologous cultures.
3. A high titer serum has been produced in rabbits by repeated inoculations with living cultures. This serum has shown an increase of potency with the passage of time. Such serum should be of value as a means of differentiating allied organisms.

EDEMA OF THE BRAIN IN THE INFECTIOUS DISEASES

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Little is to be found in the literature relative to edema of the brain in the infectious diseases as a clinical entity, and much less, therefore, if anything, as to edema as a clinical type of an infectious disease. We are all familiar with the occurrence of meningismus in acute diseases, and during the febrile stage are not surprised to have some evidence of it; but how many of us are prepared to take the position that edema does, in some cases, develop to such an extent that it masks the ordinary clinical picture of the disease and may occasion doubt as to the diagnosis?

Edema of the brain may and does appear at different periods in the course of the infectious diseases. When it occurs early it may hide the true nature of the illness and it has been noticed on several occasions that with the predominance of this feature there may be an atypical rash and the picture so unusual that grave doubt arises as to the basic diseases. When it appears late the difficulty is increased greatly, because if we are unaware that such is to be expected and looked for we may be somewhat disconcerted and wander from Dan to Beersheba, seeking the correct diagnosis, and return empty handed.

The recent epidemic of poliomyelitis offered unusual advantages for the clinical study of edema of the brain. The mental attitude of the patients is one of the most striking features, and all variations from hyperexcitability to melancholia, from gibberish to silence, associated with and without paralysis, but always with edema, were noted. In our study of these cases we soon appreciated the difficulty of reaching any agreement as to the interpretation of the Macewen sign on the basis of sound and we adopted a modification of the sign, as described, and based our findings on the difference in resistance noted on percussion. Increased resistance on percussion was used as a guide to treatment and was the determining factor in the performance of lumbar puncture. It was interesting to observe how readily visitors to our wards took up this method and how regularly an agreement as to findings was reached.

It will, no doubt, be admitted readily that a clinical diagnosis of edema of the brain may be correctly made from a study of objective symptoms alone, and more readily admitted that in poliomyelitis it is one of the most frequent symptoms. It will not be so readily admitted that in the infectious diseases the same condition is to be found; nevertheless, it is possible to establish by the same signs and symptoms the same clinical facts and to confirm these in various ways. As in poliomyelitis, so in scarlet fever, measles and diphtheria the edema of the brain exists; as in poliomyelitis, so in the diseases mentioned the amount of the edema changes the clinical picture from the generally accepted type to one that may lack characteristic symptoms. In scarlet fever the rash may be atypical and the mental condition marked, and grave doubt may arise unless we recognize the variation in type. As in poliomyelitis, so in the diseases mentioned this edema may persist for weeks after convalescence is established.

TIME OF OCCURRENCE

From the very beginning, the mental symptoms may predominate; or they may not develop for from twenty-four to forty-eight hours or longer after the onset. They may not develop until the third week, and again, they may not be sufficiently evident until after convalescence is well established—after the fourth week in scarlet fever and after the second week in measles—to give rise to any serious thought. In hospital practice it is not unusual to have a child sent in who has been ill for from six to eight days, who shows no evidence of scarlet fever or other infectious disease, who is delirious and who may prove very hard to control. Here the history may help and the case is isolated; but if a patient is admitted and there is no such history to guide one, a grave injustice may be done other patients. It is well, therefore, to consider the possibility of the infectious diseases if such a case presents itself in private or hospital practice.

ANALOGY TO SYPHILIS

It would seem that there is some analogy between syphilis and the infectious diseases. It is well known that a syphilitic patient presenting marked cutaneous symptoms may be absolutely free from any involvement of the nervous system, and may never develop a nerve lesion. Again, patients present themselves showing all grades of involvement of the nervous system who cannot recall ever having had an eruption of the skin. One may hesitate to believe that these patients never showed any skin manifestations, but one must admit that the rash must have been very insignificant to have escaped recognition or, in other words, that the rash was atypical.

INTERRELATIONSHIP BETWEEN CUTANEOUS AND SPINAL PRESSURE

In presenting the history of an interesting case of cerebrospinal meningitis to the Pediatric Section of the New York Academy of Medicine a year ago, I made this observation:

> It would seem that when the spinal symptoms are marked, the cutaneous symptoms may be negative and vice versa. That this interrelationship holds I have long been convinced.

same picture as noted in the cerebrum. The choroid plexus was chiefly interesting because of the presence of numerous psammoma bodies.

CONCLUSIONS

1. Edema of the brain occurs in the infectious diseases.
2. Its presence not infrequently masks the symptoms of the disease in which it is due, and it may be considered as a type per se.
3. The primary involvement may be that of the central nervous system.
4. There is an interrelationship between the cerebrospinal pressure and that of the cutaneous circulation. This relationship is one of direct variation.
5. The outbreak of a marked cutaneous eruption in a case presenting symptoms of intracranial pressure is a favorable prognostic omen. These patients recover.
6. Lumbar puncture is indicated in these cases.
7. White light electric baths, in that they favor an increased cutaneous circulation, are beneficial and are preferable to hot tubs of from 105 to 110 F., though the latter are productive of good results.

25 West Forty-Fifth Street.

CARDIOVASCULAR EXAMINATIONS OF FIFTY-FIVE THOUSAND RECRUITS

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CAMP TRAVIS, FORT SAM HOUSTON, TEXAS

There is no reason why diseases of the heart should not be given equal rank with tuberculosis, for in civil life they result in at least as many, if not more, deaths. In the Allied armies more disability is due to cardiovascular disease than to tuberculosis. The recent report to Parliament showed that of the 350,000 men in the British army discharged and pensioned for wounds and diseases, a little over 10 per cent. were for heart disease and about 11 per cent. for chest complaints and tuberculosis. When we consider that whenever tuberculosis is found in the soldier he is discharged and pensioned, whereas very many of the men with cardiovascular disease are not discharged but are merely put in deferred classes of the Army, we see that circulatory diseases are undoubtedly of more importance to the Army than tuberculosis. It will surprise many to know that there are two and one-half times as many pensions for heart disease in the British army as there are for the loss of limbs, and nearly twice as many as for nervous diseases, shell shock and epilepsy together.

The cardiovascular board examining recruits at Camp Travis, Texas, has completed the examination
of 55, [illegible] ls itself in possession of informa-
[illegible] the standpoint [illegible] tatistics as well
[illegible] ir efforts to
[illegible] camps who
[illegible] ion because

[illegible] at Camp Travis
[illegible] ving at the
[illegible] e receiv-
[illegible] from the
personnel board, are stripped, given a shower bath, and then sent to the various special boards examining in the same group of buildings. The last board to examine them is the cardiovascular board. This board has its quarters in the quietest wing of the building. The two members of the cardiovascular board working in this building simply attempt to pick up cases for more thorough examination. It is thus possible for two examiners to complete the examination of 1,500 men for cardiovascular disease in one day. An attempt is made to differentiate murmurs due to valvular lesions from purely accidental ones and to select as far as possible only such cases of tachycardia for more thorough examination as show the other symptoms of irritable heart or hyperthyroidism. A much more extensive examination is then given the selected cases by the third member of the board, who has his quarters in an adjacent building with the discharge board of the camp. After this examination, the recruit is classified and accepted or discharged.

The two members performing the first examination usually consult over each case before sending it to the discharge board, and the member of the cardiovascular board working with the discharge board consults and discusses the difficult and ambiguous cases with the other two members constantly so that no man is discharged from this camp without a thorough examination and critical discussion, unless the case is a very simple one. The cardiovascular board has also learned much from examination of a large number of enlisted men of the Ninetieth Division now stationed abroad. The board also receives a certain number of men from the training battalions into which the men had been inducted after the first cardiovascular examination, for reexamination and reclassification, who have been found unable to stand up at drill, showing signs of dyspnea, precordial pains or fainting on exertion.

We believe that our figures show approximately the amount of valvular heart disease incident to young men in the ages from 21 to 31 living in the states of Texas and Oklahoma. We can hardly believe that the majority of the local boards sending men to Camp Travis are capable of picking up many cases of valvular diseases of the heart. In the earlier draft increments, we found twelve men in 10,000 troops with aortic insufficiency, presenting symptoms of a large heart pulsating strongly in the axillary line with loud diastolic murmurs at the sternum and often at the apex, with typical Corrigan pulse and all the features of outspoken aortic disease, marked by local boards "heart normal." The last two increments yielded a smaller percentage. The last increment of 19,000 men yielded only eighteen cases. We have found the same to be true of mitral diseases. Local boards which could not discover the majority of the cases of aortic and mitral insufficiency discharged by us would certainly reject extraordinarily few of the cases of organic heart disease passing through their hands. Undoubtedly, however, the excellence of the work done by the local boards varies from board to board, so that our statistics do not give the actual percentage of young men suffering from these diseases; but they certainly give the order of magnitude of the incidence of valvular disease at these ages in these states.

AORTIC INSUFFICIENCY

We found fifty cases of aortic insufficiency in examining 55,000 recruits, that is, 0.09 per cent. With only a few exceptions, these were outspoken cases with loud diastolic murmur heard all over the sternum and often at the apex, with hypertrophy to the left, with Corrigan pulse, with high pulse pressure and all the other classic signs. In a few cases the murmur was very soft and faint and the hypertrophy slight. One of these men was a university athlete, a high and broad jumper. He was at the time of the examination able to undergo severe bodily exertion, but he had all the signs of aortic insufficiency and a history of polyarthritis in childhood. One of the most interesting cases was that of a Texas cowboy, a man who had been a "broncho buster." This man had once noticed while riding a wild horse that something seemed to break behind his chest bone and that there was pain present behind the sternum for some time. There was a high pitched musical diastolic murmur heard over the second intercostal space to the right and left and over the sternum. The pulse pressure was only a little larger than normal, there was no hypertrophy, and there were no signs of dyspnea on hopping. The man professed to be able to do hard work, but had found it necessary to give up broncho busting. It would appear that we might have here one of those rare cases of a rip in one of the semilunar leaflets brought about by a strain and trauma. Of course it is impossible to verify this without the records of examinations previous to the occasion when the accident supposedly took place. It is interesting to note that only once did a local board mark a case of aortic insufficiency anything but normal. In this one case in which the aortic diastolic sound was especially loud, was heard at the apex as well and was accompanied by an apex beat in the axillary line and by relative mitral insufficiency, the local board marked its findings "apex sound prolonged."

Most of the cases of aortic insufficiency were undoubtedly due to polyarthritis. In many of the cases there was also a history of syphilis; but the syphilis had been acquired only a few years before. In these young men with a history of polyarthritis, tonsillitis and syphilis it seems most probable that the lesion is rheumatic in etiology. The incidence of aortic disease in the colored race was slightly greater than in the white. Most of these afflicted with this lesion were doing hard labor. Some of them certainly appeared capable of the severe bodily exertion demanded of soldiers. In fact, they were often physically better than those whom we discharged for irritable hearts and in whom there was no valvular lesion. As long as the leakage is only slight and the heart muscle is capable of doing the extra amount of work necessitated by the leakage, these hearts respond very well to a call for severe exertion. It is later, when the increasing leakage puts an increasing handicap on the heart muscle and when the heart muscle begins to weaken, that these men notice symptoms. Pain over the sternum is often for a long time the only complaint. In this connection, we recall some cases of aortic regurgitation seen at Nauheim during the early period of the war. The men had served their period of enlistment years before, had developed an aortic regurgitation in the interim and were mobilized after a very superficial examination at the beginning of the war. These men were farmers and laborers and went through many days of hard marching with 75 pounds on their backs. At a time when men with healthy hearts began to be exhausted from the forced marches through Belgium and Russia, these men began to show signs of heart failure; pain, dyspnea, swollen ankles and hemoptysis. When once this exhaustion of their cardiac muscle had taken place, it seemed to be accompanied by a permanent impairment of the cardiac reserve, so that these men who had been mobilized as efficient laborers had to be discharged after treatment at the spa as partial invalids capable of only light work. For this reason, we are convinced that it is best to exclude all men with aortic lesions, even when the leakage appears slight and the heart muscle capable of taking care of it.

MITRAL INSUFFICIENCY

There were thirty-nine cases of mitral insufficiency unaccompanied by another lesion, that is, 0.07 per cent. It will probably astonish many who believe that mitral insufficiency is relatively a very common valvular lesion. On the other hand, we believe that those who have had considerable experience with heart disease, both clinically and pathologically, will agree that mitral insufficiency of endocarditic origin and uncomplicated by mitral stenosis is relatively not very much commoner than aortic insufficiency. Relative mitral insufficiency accompanying myocarditis in the middle aged and old, or associated with other valvular lesions, is relatively, of course, very common. There has been a tendency to consider a loud systolic murmur at the apex pathognomonic of mitral insufficiency. Many of these murmurs are undoubtedly not due to valvular lesions at the mitral orifice. It is true that the members of the local boards will undoubtedly pick up and discharge more cases of mitral insufficiency than aortic insufficiency because the mitral systolic murmur is much more easily recognized than the softer aortic diastolic murmur. On the other hand, we cannot believe that the local boards have picked up and discharged very many cases of simple endocarditic mitral insufficiency, for these boards have sent to camp a large number of men with loud systolic murmurs which on careful examinations have turned out to be accidental murmurs, but which had not been noted by the local board.

ACCIDENTAL MURMURS

Our experience in reviewing the findings of physical examinations at one of the largest universities in the country and as members of medical advisory boards, as well as here at Camp Travis, have shown us that the average practitioner has not had the great incidence of accidental heart murmurs in the young impressed on him sufficiently. We have never forgotten the case of one of our college classmates who was advised against taking part in athletics because he had a "leakage of the heart." This man became famous as a cross-country runner and as 2-mile champion both here and abroad to the astonishment of the examining physician, who had heard a systolic murmur. We have seen numbers of young men turned down by the examiners for the Aviation Corps and the Navy for nothing more than systolic accidental murmurs, some of them heard in the second interspace. Some of the men appearing before us for examination present statements from one or more physicians vouching for their inability to become soldiers because of valvular lesions. All these men show nothing but simple accidental murmurs. Every cardiac consultant can recall many young lives at least temporarily blighted by one of these diagnoses. One of the men examined by us had been turned down by the local board with the stat

"Physically deficient by reason of cardiac murmur." The advisory board had diagnosed it "mitral regurgitation," but for some reason had passed the man. The murmur was an accidental one heard best in the third left interspace. The etiology of mitral regurgitation in this case will certainly be of interest to the readers of this article. The young man had been in love with a girl. He had bought himself a homestead, had worked hard on this, doing his own house work as well as field work and hoped finally to lead the blushing bride back to the farm which he was preparing for her. When all was ready, the girl turned him down. According to his statement, this caused him heart trouble. On close questioning his trouble seemed to be more in his stomach than in his heart, and we felt that despite this very real "heart" trouble he might still make a good soldier.

We found that 3.2 per cent. of all our recruits have an accidental murmur; and by accidental murmurs we do not mean reduplicated and impure first sounds but real murmurs with a swish or rumble, often very rough and loud, and in quality indistinguishable from the murmurs associated with real organic lesions. As Lewis has insisted, in the examination of English soldiers, "neither the quality, intensity nor transmission of a murmur is sufficient for distinguishing it." There is a soft systolic murmur usually disappearing on recumbency which most physicians distinguish as an accidental murmur, but many of the loud, rough systolic murmurs transmitted into the axilla lead to the diagnosis, "mitral insufficiency." In one of the latest American works on the physical diagnosis of the chest we find the false statement that "accidental murmurs are never loud and rough." It must be insisted on that whenever there is an organic insufficiency at the mitral valve of any importance, the left ventricle must dilate in order that the heart may do the extra amount of work set for it and pump out the increased minute volume. The regurgitation of blood backward must lead to increased pressure in the pulmonic circulation with accentuation of the pulmonic second sound and dilatation of the left auricle. Without hypertrophy and signs of embarrassment of the pulmonic circulation, there should be no diagnosis of mitral insufficiency excepting, of course, when the physician has heard a systolic murmur developed during or following rheumatic fever or other infections. Even then the diagnosis must be made with reserve unless the other signs are present. We recall here the case of a recruit recently examined by us. He had been rejected for the Texas cavalry because of an extremely loud and rough systolic murmur. This boy had two typical attacks of polyarthritis in childhood. When we examined him, the pulse rate was 108; but the young man told us he had many times examined it himself and had always found it to be 70. The apex beat was well within the midclavicular line. Percussion of the left border showed it also inside the midclavicular line. The pulmonic second was louder than the aortic but not accentuated; the response to effort was good; he played baseball and was a good swimmer. We were all agreed that despite the history of polyarthritis in this case, there was practically no regurgitation through the mitral valve. We do not care to discuss here what may be the causes of these murmurs; but we do wish to point out that the loudest systolic murmur unaccompanied by definite signs of pathologic anatomy and of pathologic physiology in the circulation should not lead to a diagnosis of valvular lesions. The left auricle in contradistinction to the left ventricle cannot be burdened with even moderate amounts of regurgitated blood without embarrassment to the pulmonary circulation.

Good judgment must also be exercised in making use of a pulmonic second sound louder than the aortic. The pulmonic second is usually louder than the aortic in men at these ages, especially when recumbent. If the pulmonic is not merely louder but is accentuated or reduplicated, this evidence is in favor of the diagnosis of mitral disease. But we have found cases with reduplicated and accentuated second pulmonic sounds in hearts without murmurs or hypertrophy and with no symptoms.

The determination of hypertrophy of the left ventricle is fraught with uncertainty in many cases if percussion and position of the apex beat are the only means for determining the left border of the heart. It should be emphasized that the apex beat is not always a reliable index of the position of the left border. Usually the apex beat is inside the left border of the heart as determined by the orthodiagram or accurate percussion; but sometimes the apex beat is one or more centimeters outside the left border as determined by the orthodiagram, especially when the heart is overactive. Hypertrophy of the left ventricle was once diagnosed in the author by a very good clinician because the apex beat was strongly felt in the anterior axillary line. An orthodiagram of the heart showed the left border to be well within the normal limits. This led to the investigation of a number of thousands of cases by Professor Weber at Nauheim. It was found that many patients with supposed dilatation determined by the position of the apex beat and sent to this spa for treatment showed normal orthodiagraphically determined borders, the real apex being seen on the fluoroscopic screen of the orthodiagram to be pulsating well inside the nipple line. In the course of our examinations of 55,000 men we have found the apex beat in many cases outside the nipple line in hearts whose border as determined by roentgenoscopy or percussion was inside the nipple line. This was found to be especially the case in those chests in which the thorax suddenly curved posteriorly before the nipple line was reached. In these chests the thrust of the apex is propagated out beyond the actual position of the apex in the frontal plane. We believe that careful percussion conducted in a very quiet room by physicians who have practiced and carefully controlled their percussion orthodiagraphically in hundreds of cases is often superior to the palpation of the apex beat in determining whether a hypertrophy is present or not. Of course, whenever possible, roentgenographic methods, making use of parallel rays, are the methods of choice.

The response of the heart to effort may aid in determining whether the possessor of a systolic murmur has an organic heart lesion or not. But this may also leave us in doubt, for many cases of irritable heart that have a poor response to effort also show a systolic murmur. Critical judgment and an extensive experience in the physical signs of normal and pathologic hearts is indispensable in finally deciding where to place certain cases; but usually we have not found it difficult to determine when a systolic murmur is the sign of a real organic lesion at the mitral valve. We desire again to emphasize the great value which percussion of the heart borders, combined with a comparison of the orthodiagram of the heart, has been to us personally in determining the accuracy of our percussion. We have had success in the teaching of percussion to students by this method. If this method were followed in all our medical schools, we feel that there would be fewer diagnoses of left ventricular hypertrophy, on hearing murmurs that are undoubtedly accidental.

The greater part of the accidental murmurs (2.5 per cent.) were systolic and loudest over the apex. About 0.6 per cent. of all the recruits showed systolic murmurs loudest over the second left intercostal space. Only about 0.2 per cent. showed pronounced cardiorespiratory murmurs. About 0.2 per cent. showed murmurs loudest over the second right interspace and transmitted into the carotids. There were none of the other symptoms of aortic stenosis, and neither roentgenoscopy nor percussion showed any enlargement of the arch. There were no symptoms, and therefore both aortic stenosis and aortitis being reasonably surely excluded, the diagnosis of accidental murmur was made. There were four recruits (less than 0.01 per cent.) found with diastolic murmurs after due deliberation classed accidental. These murmurs are very soft and usually heard only in the earlier parts of diastole. They are usually influenced by respiration, nearly disappearing on inspiration. There is no history, and there are no symptoms nor any signs of aortic insufficiency associated with these murmurs. In one case there was a peculiar diastolic murmur heard over the second right interspace over the whole of the lower sternum and to the right of it when the recruit was standing. This murmur was increased on expiration but did not disappear on inspiration. In the recumbent position, there was no diastolic murmur heard, its place having been taken by a soft systolic respiratory murmur. The blood pressure was 130 and 80; tonsillitis was the only disease in the patient's history. There was no hypertrophy, and the recruit had never experienced dyspnea or pain over the chest; in fact, he remarked that he always feels well. Here again, we see that no one symptom alone is pathognomonic. Time and again we have had cases in which there was no pathologic condition referred to us with a diagnosis made from one symptom alone.

STENOSIS, HYPERTROPHY AND OTHER CONDITIONS

Mitral stenosis is apparently very rare in the states of Texas and Oklahoma. We have found only ten cases of undoubted mitral stenosis (presystolic murmur, accentuated second pulmonic, typical mitral outline) in an examination of 55,000 men. Rheumatic fever is probably very uncommon in these states. We have been very careful not to diagnose a mitral stenosis unless there was a definite typical presystolic murmur with accentuation of the second pulmonic sound.

We are altogether opposed to making a diagnosis of mitral stenosis from a loud, slapping first sound. If there is no presystolic murmur or thrill, there is no stenosis in these early stages. We have never been able to confirm Mackenzie's statement that the presystolic thrill is to be felt before the murmur is developed. At least by the man of slight cardiovascular experience, the presystolic thrill alone should never be used to diagnose a case. There are certain impurities of the first sound suggestive of presystolic murmurs that have led to the diagnosis of mitral stenosis. Some years ago we showed by graphic records that there are a few sound vibrations in the first 0.1 second preceding the normal first sound.[1] In some individuals, these vibrations have considerable amplitude. In one man investigated by us graphically, these vibrations varied in amplitude, on some days being loud enough to cause an impurity of the first sound. But these impurities are never as loud nor as prolonged nor of cresendo character, and so far as our experience goes never accompanied by the loud, slapping first sound of mitral stenosis. Exercise usually causes them to disappear, whereas the true presystolic murmur of mitral stenosis is increased in duration and intensity after exercise. The impurities should not cause the cardiovascular examiner any trouble if he is careful to consider all factors. The presystolic sound of mitral stenosis is not easy to recognize, and it is very probable that only such cases as were badly decompensated were recognized by the local boards. We believe that our figure for the incidence of mitral stenosis gives a tolerably fair idea of the order of frequency of this disease in Texas and Oklahoma.

We have found aortic stenosis complicating very few of our cases of aortic insufficiency. We have found no case of uncomplicated aortic stenosis. There have been many cases with a systolic murmur on the second right interspace and transmitted into the carotids, but unaccompanied by thrill over the interspace, by the typical pulsus durus and the faint second aortic sound. These cases have always been classified as accidental murmurs.

There were six cases of idiopathic hypertrophy with no apparent cause. There was no hypertension at the time of the examination, and it was not possible to observe these cases over a long period. Very possibly the hypertrophy was associated with periodic crises of hypertension. Ten recruits had hypertension, that is, a systolic pressure continuously above 160 mm. There were symptoms of nephritis in only one. One case suggested Pal's vasomotor crises. This man gave a history of attacks with severe pain over the chest, throbbing in the head, flushing of the face and headaches. His blood pressure was very labile during the period that we had him under observation, the systolic pressure ranging from 170 to 220.

Among the rare heart diseases we found one case of heart block with a rate of 38 and Stokes-Adams syndrome. There was no increase in the rate on exercise or after atropin. There was a history of syphilitic infection two years before. The fainting spells began five years before so that syphilis probably has no connection with this case of heart block. We also found one case of patent ductus arteriosus with a typical to and fro murmur in the second and third left interspaces transmitted to the interscapular region on the left side, with a loud second pulmonic sound, and pulsation in the third left interspaces. There was no hypertrophy, and the man felt perfectly capable of every exertion. He was accepted for service. There was one case of congenital septum defect, marked cyanosis since birth, clubbed fingers, moderate dyspnea on slight exertion, a loud systolic murmur heard best over the lower end of the sternum and to the left of sternum in the fourth interspace. This murmur was transmitted to all parts of the anterior chest wall and also into the back. The second pulmonic sound was loud. There was no enlargement to the right. We believe that the best guess in this case is patent *foramen ovale*. There was one case of dextrocardia with situs inversus. There were only seven cases of hyperthyroidism.

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[1] Fahr, G. E.: On Simultaneous Records of Heart Sounds and Electrocardiogram, Heart 4: 147, 1912.

Excepting for the respiratory arrhythmia, common at this age, irregularities in rhythm are fairly rare. We have found that about 0.05 per cent. of all have extrasystoles of ventricular origin with no other pathologic condition. Sometimes they were associated with bigeminal pulse, and sometimes with no pulse following the second systole of a coupled beat heard at the apex. Usually these men were conscious of a compensatory pause, stating that their heart missed beats. It is customary for these extrasystoles to disappear entirely in a day or two after the excitement of mustering is all over. In the examination of 55,000 men, we have found but one case of pulsus irregularis perpetuus, a case of mitral stenosis and insufficiency with a soft diastolic murmur at the apex.

NEUROCIRCULATORY ASTHENIA

The condition previously known as irritable heart, but recently better designated as neurocirculatory asthenia, is by far the most important circulatory disturbance, both to the medical officer culling out at the recruiting station and to the medical officer examining at the front. For example, the report of one of the British base hospitals in France shows that out of 5,000 soldiers examined for circulatory failure only 5.5 per cent. had organic lesions and about 86 per cent. showed the condition known as irritable heart. In fact, the diagnosis of irritable heart is so much more important to the military surgeon than the diagnosis of organic lesions that Lewis makes the somewhat radical statement that the military heart specialist has no use for a stethoscope. Our experience at this camp seems to show that about 0.4 to 0.5 per cent. of all the recruits should be discharged for inability to stand up under severe bodily exertion because of neurocirculatory asthenia.

A brief description of the symptomatology of neurocirculatory asthenia[2] is perhaps not out of place at this point, especially as the condition has heretofore been described as seen at the front and not as observed in the training camp. Neurocirculatory asthenia, or the irritable heart of the soldier, as it is often designated, is not a condition determined by the exertions and emotional upsets of military life alone. This condition always exists among civilians. Careful inquiries have shown that among a large number of those who break down at the front with this disease, the symptoms were already present in civil life. The severe bodily exertion and the emotional stimuli associated with modern wars serve to bring out and emphasize this condition. Moreover, it is peculiarly inherent in the modern methods of conducting warfare. When military service is confined to a class who practice it voluntarily, irritable hearts will be few, because the possessor of the constitution of the neurocirculatory asthenic usually does not seek the strenuous life of the soldier. He is the type of man who avoids strenuous physical exertion and strong stimuli. Modern armies are obtained by drafting all men within certain age limits; and these more timid, less strenuously inclined individuals are taken along with the rest.

The effort syndrome is the peculiar characteristic of neurocirculatory asthenia, namely, an exaggerated response to physical exertion and emotional stimuli. Slight physical exertion produces marked dyspnea, greatly increased pulse rate, a feeling of fatigue, and very frequently pain over the precordium. Even the slight emotional stimulus of the physical examination will cause sweat to trickle down from the arm pits or stand out in beads over the foreheads, or will cause a flush to appear in the face, and the pulse rate always goes up to from 120 to 150. Many of this class have cold, clammy hands, and show a coarse tremor of the fingers or of the lower limbs during the examination. In other words, very slight causes produce great effects in these individuals. They are the men who in civil life drifted from one occupation into another. Many of them are clerks, others are sign painters, barbershop porters, any occupation that involves little exertion. Here in Texas, many of them, born as farmers, remain in this profession; but they give a history of avoiding severe bodily exertion. They almost invariably give a history of being unable to stand heat. They are subject to giddiness when forced to work in the hot sun, and are compelled to go into the shade to rest and cool off, when other men stick to their work. In other words, they are not first class men but belong to the constitutionally inferior class.

If these men are accepted by the recruiting authorities, it is noted that throughout the course of training they are continually falling out at drill, and they complain of weakness, pain over the heart, palpitation, inability to stand the hot sun, and inability to sleep after a hard day's work. They are often looked on as malingerers, and undoubtedly often they are when judged by our present standards. The company commanders like to get rid of them, transfer them, if it is impossible to get them discharged. If finally taken to the front, they are usually sent back to the base hospitals because the severe bodily exertions and emotional disturbances there are too much for them. Desire for alcohol and development of the sexual instinct have always been looked on as indicative of strength in men. As a class the neurocirculatory asthenics are not attracted by either Bacchus or Venus.

Neurocirculatory asthenia is probably not primarily a disease of the heart, but symptoms are due to an overexcitability of the autonomic nervous system, an irritable weakness of the vegetative nervous system. The rate of pulse at rest is always increased over that of normal individuals, owing to an increase in the tone of the accelerator nerves. Vagus tone seems to be normal. The increased activity of the sweat glands and the heightened response to the action of pilocarpin show that the parasympathetic system innervating the sweat glands has increased tone. The response to epinephrin is increased over that in the normal, showing increased excitability of the vasomotors. Many have marked sinus arrhythmia, showing that the centripetal vagus fibers from the alveoli of the lung are hyperexcitable. Many of these men show decided neurotic or psychoneurotic symptoms. We believe that all of the nervous symptoms can be explained on the basis of changes in the tone of the nervous systems, especially the vegetative.

In the foregoing we have been describing the most common type of neurocirculatory asthenic. At the training camps one encounters another class, less frequently. In the latter class there are no signs of constitutional inferiority. These men give a history of having done hard work, of having played games, etc., until a severe infection, usually typhoid, pneumonia or influenza, was followed by a slow and incomplete recovery. From this convalescence they invariably date their inability to undergo severe exertion. The men in this class usually appear fit to the eye, but the exercise test is followed by dyspnea and distress and a marked increase in pulse rate, which does not go down for five minutes or more. These cases show the cold, cyanotic hands, the sweating and the coarse tremors less frequently than the cases that are associated with constitutional inferiority and psychoneurotic symptoms. Tachycardia is also present in these cases when they appear for examination. They correspond to the cases of Group 2 of Oppenheimer and Rothschild.[3]

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[2] Lewis, Thomas: Report upon Soldiers Returned as Cases of "Disordered Action of Heart," Medical Research Committee, 1917; Report on Neurocirculatory Asthenia and Its Management, Mil. Surgeon 42:[illegible], 1918.

The tachycardia is the symptom that draws the attention of the cardiovascular examiner to these men. The excitement of the examination and of the new environment tends to increase the pulse rate in all men; but, as stated before, the increase is greater in this class than in normal men. Of course, men having hyperthyroidism, men with high temperatures or recently recovering from infectious diseases, and men under emotional stress will also show increased pulse rate. After noting the increased rate, it becomes the duty of the examiner to classify the case. The hyperthyroid cases will show enlarged thyroid, eye symptoms and the characteristic fine tremor. They will usually give a history of loss of weight with good appetite, of much sweating and a "flying off the handle." Men recovering from infectious diseases will give the history. Many of those suffering from neurocirculatory asthenia will also give a history of infectious disease; in fact, as stated above, it would seem from our observation that typhoid fever, tonsillitis, pneumonia and influenza are often directly associated with the causation of this condition. We lay great stress on a history of inability to do hard work, wandering from job to job, precordial pain, lack of desire to play games, to swim, to skate, to take part in young men's activities, dyspnea on slight exertion and palpitation. A history of infectious disease followed by the symptoms of irritable heart is equally important; in fact, there should be no diagnosis of neurocirculatory asthenia without a typical history.

The objective examination is conducted as follows: The pulse rate is taken with the soldier standing and recumbent. The recruit is then made to hop 100 times on one foot. The pulse rate immediately after exercise and two minutes later are taken in recumbency. The typical case of irritable heart will show a marked difference between the rate recumbent and the rate standing. The heart reacts strongly to what is normally a very slight circulatory change. Hopping a hundred times is very mild exercise for the normal man, and the heart rate increases only moderately. There is only a very slight increase in breathing, and there is no distress. The circulatory asthenic shows distressing features, becomes markedly dyspneic, the pulse rate increases alarmingly, and the recruit is glad to lie down on the bed. After two minutes, the pulse rate in the normal returns to within a few beats of the preexercise recumbent rate. In fact, it usually is a few beats less, whereas, in the irritable heart, the rate does not come back within two minutes and there is often dyspnea after this period. The so-called effort syndrome, this exaggerated response to light physical exertion and the poor "come-back" is the most characteristic feature of neurocirculatory asthenia. It alone is not sufficient for the diagnosis, because in reconvalescence, after inoculation and during certain emotional states, the same exaggerated response is often encountered. Before the diagnosis is made, a very careful history must be taken and the examiner must be very shrewd in judging the timber from which men are made.

Many of the negroes come to us with the diagnosis of "heart trouble" firmly fixed in their minds. They complain of precordial or chest pain, especially when forced to work hard. There is a tachycardia and the pulse reaction characteristic of neurocirculatory asthenia, yet there is something about the case that does not impress one as genuine. The dyspnea is often very marked before exercise. In many cases, the rate of breathing becomes much less after exercise and the exaggerated dyspnea is done periodically, a rest from the strenuous contortions of the abdominal and diaphragmatic muscles being necessary. In these cases, the symptoms are overdone to the point of being grotesque. They are simply cases of simulation; but the pulse rate is up, and if one were to judge from one examination, a discharge would probably be given. We therefore insist on repeated examination, and sometimes catch the malingerer on one of his "off days."

For instance, a negro was recently sent to the cardiovascular board from his infirmary for reexamination and classification. He complained of precordial pain and pain in the back, and found it necessary to stop and rest when the drill period was long, because of "weakness" and "shortness of breath." Close questioning brought out the fact that he had a large crop of cotton at home that needed his attention. His pulse rate standing was 156, and in recumbency 124. After exercise his pulse rate went up to 156, and after two minutes rest in recumbency the rate was 124. The exercise produced dyspnea, which seemed exaggerated. It was largely produced by abdominal muscle work. He was asked to return one week later. On our arrival at the cardiovascular examining room on the appointed morning, we found him clutching a post with one arm, bent over with his other hand on the precordium, and his abdominal muscles working with his diaphragm to produce a dyspnea of almost 60 per minute, a picture of intense distress. The pulse rate standing this day was 140, in recumbency 104, after exercise 140, and two minutes later 104.

The dyspnea after exercise was great, but no greater than before We finally decided that this man should be put in a labor battalion, for his pulse rate was persistently high. We told the soldier that we had decided that he was unfit for the work of a soldier, which required a man who could keep going even when he got tired and out of breath, but that he was good enough for a labor battalion, to wield a pick and shovel and clean up latrines. We emphasized the fact that he might have to dig ditches under fire and that his only advantage over the soldier was that he could take a rest, even under fire. A surprised look came over the negro's face, and he began to beg not to be put into a labor battalion. He wanted to wear a uniform and carry a gun. He knew that he could stand hard drilling. We promised to give him another examination in fifteen or twenty minutes. In the meantime he was to sit down and rest. When reexamined, not more than half an hour later, his pulse, standing, was 88, recumbent 68, after exercise 120, and two minutes later 88. There was no dyspnea after hopping this time, and what is more important, no dyspnea of the abdominal type before hopping.

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[3] Oppenheimer, B. S., and Rothschild, M. A.: The Psychoneurotic Factor in the Irritable Heart of Soldiers, J. A. M. A. **70**: 1919 (June 22) 1918.

We hope that this boy will remain "cured." We believe that the threat of the labor battalion will be a very good prophylactic measure for him and his comrades.

REJECTIONS

The cardiovascular board at Camp Travis has been turning down between 0.3 and 0.4 per cent. of all recruits at the first examination for neurocirculatory asthenia. Later on during the period of training a certain number of men are sent back to the board for reexamination and reclassification, because they have been found to be unable to stand up at drill. At the first examination it is impossible to cull out all, for there is every degree of neurocirculatory asthenia and a small percentage will become fit for the physical exertions of a soldier when carefully trained. When the Ninetieth Division, consisting of about 22,000 men, left Camp Travis for France, about 2,000 men were discarded for physical inaptitude. Of this number, the cardiovascular board picked out fifty as typical neurocirculatory asthenics, that is, about 0.25 per cent. of the strength of the division. This was not the total number of neurocirculatory asthenics with which the Ninetieth Division was embarrassed; a few had been discharged during the training period, and more had been transferred to the depot brigade as inapt for foreign service before the departure of the division. The cardiovascular board has been gradually weeding them out of the camp. They are sent to the cardiovascular board by the infirmary physicians, who well know that these tachycardias are continually being returned to the infirmaries by the company commanders, who can get nothing out of them. In fact, it has often appeared to us that the company commanders are more familiar with the symptoms of neurocirculatory asthenia than the average medical officer. We well remember the remark which one of our friends made before sailing for France with his company. He was describing and discussing the large number of men in his company who could not stand up under hard hikes, who were short winded, and lacked courage and initiative in performing athletic stunts. This officer said:

> Don't the doctors know anything about heart diseases? All these men have poor hearts. They haven't any wind; I have sent them back to the infirmary a number of times, but the doctor will never discharge them. I know they will never be any good when we get them into the trenches. I would rather have a company lacking its full quota than to have the quota made up of these men. They are the biggest handicap I have.

His remarks about the doctors were certainly justified. We have been taught to look for anatomic lesions, murmurs denoting valvular defects. Moreover, there was a tendency in the early period of the formation of our army to keep down the number of rejections at all costs, and of course the cost was paid by lowering the quality of the men. When the cardiovascular board first began its examinations at Camp Travis it was impossible to have men discharged from this camp for neurocirculatory asthenia which was termed "simple tachycardia." Consequently these men got into the division. Many of them had to be transferred back to the depot brigade and are being culled out of that organization gradually at present. Some got across and will have to be turned back on the other side. The manual of instructions for the examining physicians says that a constant rate of 100 or more in recumbency should disqualify. It is a characteristic of the irritable hearts that the difference between the standing and recumbent rate is very large, and many of the typical cases of neurocirculatory asthenia with rates above 120 in standing will go down below 100 on recumbency; besides, the pulse rate alone can never be the only criterion for discharge. The amount of distress after exertion, the history of the case and the appearance of the men are all as important as the pulse rate. At present the cardiovascular board at Camp Travis has carte blanche in discharging its cases. Two hundred and eight men, or 0.38 per cent. of the total number examined, have been discharged for neurocirculatory asthenia. Many of those that we felt should have been discharged during the earlier months of our activity at Camp Travis have since been discharged, either as members of the Ninetieth Division or as holdovers in the training battalion or depot brigade. Some who should have been discharged have no doubt been transferred to other camps. Altogether, we feel that about 0.5 per cent. of all the men arriving at Camp Travis should be turned down for neurocirculatory asthenia. This figure agrees very well with the estimate we have made from the number of cases of neurocirculatory asthenia in the Ninetieth Division, men who were given a fair trial and found wanting after one or two months' service. We want to emphasize again that very few of these men are any good in military service, and we do not believe that very many of them can be made first class soldiers, capable of severe bodily exertion, even when carefully trained. At present there are no special companies for properly training this class of men at Camp Travis, and the only proper procedure is to discharge them as soon as there is certainty of their condition and get them out of the Army. This type of man is naturally disinclined to exert himself. He gets stamped as a malingerer, and very possibly he is of that type; but under no circumstances should the Army be punished for the shortcomings of the man. The Army needs nothing but first class men, and these men are all of them third raters. They are the men who do not succeed in life. They are constitutionally inferior.

There are a certain number of men who, after passing the cardiovascular examination at the camps will pass through a training period as excellent soldiers, and they will go through a part of the campaign in Europe, making good records. Shell shock, gassing, infections attendant on life in the trenches, and lack of sleep, coupled with severe bodily exertion, will make neurocirculatory asthenics out of them. They are of a different type, however, and many, though not all of them, after rest and careful physical training will be returned to their regiments as good or fair soldiers. This type differs from the constitutionally inferior type, which can be culled out at the preliminary examinations. Possibly there is in these cases a certain amount of exhaustion of the myocardium. I saw a large number of these individuals in 1914 at the heart station established by the German army in Nauheim. Many showed a very slight enlargement of the left and right auricular shadows when careful orthodiagrams were made. Electrocardiograms also indicated a slight right ventricular preponderance. These men had been students, office men, business men and in some cases farmers, who had been called from a more or less sedentary life into immediate active service or whose preliminary training had been insufficient for the terrific physical exertion they were called on to undergo. They gave a history of having been forced to march up to 40 kilometers a day in the advance toward and the retreat from the Marne with insufficient nourishment and sleep, and burdened with heavy packs. This resulted in symptoms of breathlessness and precordial pain, inability to sleep, and a soft systolic murmur at the apex which we believe of little significance, and this very slight bulging of the left and right auricle shadows of the heart. The orthodiagraphic work was done by a man who helped to develop orthodiagraphy with Mortiz and who has done this work in an extremely careful way in thousands of cases. There was no question of there being a slight rounding of the figure of the heart, and there was no question about many of these cases showing a slightly depressed Q R S group in Lead I and a high Q R S group in Lead III, all indicative of a period when myocardial insufficiency had been present with regurgitation back through the mitral orifice. Under proper treatment many of these men apparently recovered full myocardial efficiency. It is interesting to note that there was no change in the orthodiagrams or electrocardiograms after the return of apparently good function.

There are a few cases of tachycardia that cannot be classed as hyperthyroidism because the other symptoms of this condition are not to be found. Neither can they be classed as neurocirculatory asthenia, for the typical history and precordial pain is not present. Usually the pulse rate does not go down as far in recumbency as it does in the typical cases of irritable heart. We classify such cases as persistent tachycardia if it is present at repeated examination, and then discharge the men; for it is evident that such hearts "will not stand the gaff." Evans demonstrated some years ago that a heart consumed more energy doing the same amount of work per minute when the pulse rate is rapid than it consumes when the rate is slow. For this reason a heart working at a rapid rate becomes exhausted more rapidly than a heart doing the same circulatory work, but at a slower rate. A slow rate is the characteristic of the well trained athlete's heart. It is a rule that men with persistent tachycardia cannot hold out, other things being equal. The possessor of a heart rate persistently above 100 should be discharged or given deferred classification.

CONCLUSIONS

1. The incidence of aortic insufficiency in Texas and Oklahoma is about 0.1 per cent. between the ages of 21 and 31.

2. Uncomplicated mitral insufficiency of endocarditic origin is comparatively rare, being probably not much greater than 0.1 per cent. for men between 21 and 31.

3. Accidental systolic murmurs at the apex are very common, about 3 per cent. of all men showing them, and they are of practically no significance, unless accompanied by signs of hypertrophy and increased pulmonic pressure.

4. Neurocirculatory asthenia is the most important cardiovascular disease in our army. At least 0.5 per cent. of all the drafted men should be rejected for this condition before the various divisions sail for France.

5. The incidence of mitral stenosis is about 0.02 per cent.; of idiopathic hypertrophy, about 0.01 per cent.; of hypertension, 0.02 per cent., and of hyperthyroidism, 0.015 per cent.

BLOOD-CLOT DRESSING IN MASTOIDECTOMY

MODIFIED TECHNIC WHICH ASSURES PRIMARY PAINLESS HEALING WITHOUT DEFORMITY—PRELIMINARY REPORT

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I wish to add my observations and experience to those of Blake, Reik, Holmes and others in perfecting the technic of the blod-clot dressing in mastoidectomy, a method, I feel, that is destined to revolutionize the after-treatment of mastoiditis.

Recently in a historical review of the institutes of surgery, Sir Berkeley Moynihan[1] observed that "a discovery is rarely the work of one mind. It is one observation added to another that makes the supersaturated solution from which the crystal of truth at last precipitates." This observation was evoked by an allusion to the respective share or credit of Lister and Pasteur for the discovery of the antiseptic system. Moynihan added that "Lister never ceased to give credit to Pasteur for his share in the work that led finally to the development of the antiseptic method."

The foregoing citation is peculiarly apropos to the theme of my text, since the key to the successful employment of the blood-clot dressing in mastoidectomy is wholly dependent on a perfect antiseptic technic, especially as we are dealing always with an infected wound in mastoiditis. The value of the "organized blood-clot" in the healing process was discovered by the greatest of original observers of pathologic conditions, the immortal John Hunter. Long afterward the technic of the blood-clot as a dressing was exploited and made practical use of in surgery on the continent by Schede and subsequently, in this country, by Halsted, Senn, Ochsner and others.

Credit is due Blake of Boston, who, at the suggestion of Sprague of Providence, R. I., first employed it in mastoidectomy. But especially to Reik of Baltimore must be ascribed the most credit for the development or popularizing the blood-clot dressing in mastoidectomy.'

Briefly, the technic of the blood-clot dressing as originally practiced in mastoidectomy was to eradicate as thoroughly as possible all diseased tissues, observing strict asepsis, and the blood-clot was admitted at the time of the operation.

The cardinal error of this technic was brought home to me by an observation and experience I had in a radical frontal sinus case which I reported, with the presentation of the patient, to the New York Academy of Medicine in March, 1918, and, by the way, the first and only case on record, so far as I know, in which the blood-clot method was used in this location—the frontal sinus.

In this case a radical Killian operation was done. After removal of the anterior sinus wall, it was observed that the entire sinus floor was necrosed and that there was the complication of a foul postorbital abscess. The necrosis extended so far into the orbital arch that it was necessary to remove this also. The postorbital abscess cavity and the sinus cavity were packed with a continuous strip of iodoform wool and the wound closed, one end of the packing being left protruding from the temporal angle of the wound and the other end coming out through the nose. In twenty-four hours this strip of wool (gauze will answer same purpose) was withdrawn by traction on the nasal end till it was taut to the temporal end, when it was cut at the nasal end, this single strand being left to block the escape of the blood (occasioned by the removal of the rest of the packing) which filled the sinus cavity, preserving the contour of the orbital arch and sinus wall.

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[1] Moynihan, Sir [illegible]: Brit. Me[illegible] in the War, 1914-1917, Tr. Brit. Med. A.

Twenty-four hours later the remaining strand of wool was removed. No further treatment was made save an oil spray in the nose during the week the patient remained in the hospital, when he went home healed without deformity and without discharge.

The operation was performed Nov. 9, 1917, and the patient remains well.

It occurred to me that the blood-clot dressing proved a success in this case simply for the reason that the infected wound cavity was first made aseptic by antiseptics at the time of the operation and the iodoform packing preceding the admission of the blood-clot. Therefore the deduction was natural that if an infected frontal sinus wound could be made sterile by antiseptic dressings preliminary to the introduction of the blood-clot, the same could be accomplished in an infected mastoid wound.

From that date I decided to modify the technic of the blood-clot dressing in mastoidectomy, for I was convinced that the incomplete success of the blood-clot dressing as originally adapted and practiced must be charged to a cardinal error in surgical technic: introduction of the blood-clot into an infected wound.

Holmes,[2] in an address on this topic before the Ninth International Otological Congress at Boston in 1912, said that "the success of the blood-clot method in a wound like the mastoid, which can never be made entirely aseptic, depends primarily on eliminating as nearly as possible all infective matter, and secondly on the bactericidal properties of the blood."

From the operative standpoint, therefore, the most expert surgeon may not hope to remove all diseased tissue and bone. He may attain such a degree of success in some cases that the antiseptic properties of the blood may resist any infection that remains, but not so in all cases.

Physiologically considered, the blood-clot dressing as originally conceived was based on the principle that if blood is admitted into a sterile wound of the soft or bony tissues, the clot will organize and facilitate healing, with obliteration of the dead space.

Reik's[3] review of this method from a physiologic point of view probably is familiar to most otologists. Unfortunately the application of this technic in mastoidectomy was not so happy as its conception, nor altogether a rational surgical procedure. While we were admonished that strict sterility of the wound preliminary to the admission of the blood-clot was essential to success, we were advised to do the impossible—to eradicate thoroughly all infected and diseased tissue. Moreover, antiseptics were tabued, only asepsis being allowed.

Therefore, without the aid of the rather marked inherent antiseptic principle contained in the blood-clot, even the best operators with perfect hospital facilities, trained attendants, etc., could not have attained the limited success they did.

What I consider to be a perfected technic that renders the mastoid wound entirely aseptic is the thorough sterilization of the wound with antiseptics at the time of operation, followed by a packing of iodoform gauze that is permitted to remain for twenty-four hours before the blood-clot is admitted.

My technic is as simple as it is effective:

All infected and diseased tissue possible consistent with safety is exenterated. In simple mastoidectomy after thorough exenteration of the mastoid and the establishing of free communication from the antrum into the tympanum, a free incision of the membrana tympani is made and with a piston syringe the tympanum is flushed from the mastoid through the canal with 3 per cent. iodin solution and then with warm alcohol followed with warm sterile physiologic sodium chlorid solution. Then the mastoid is packed with iodoform gauze and closed to the lower angle save for a space that will permit one end of the gauze to protrude.

In twenty-four hours the packing is withdrawn and the bleeding occasioned by its withdrawal allowed to fill the wound cavity. If enough blood is not forthcoming, a nick or cut with a knife or the scissors is made in the angle or margin of the flap to supply sufficient blood to fill the cavity.

The subsequent treatment after turning in the clot in simple mastoidectomy is to close the lower angle of the wound with adhesive plaster with removal of the sutures on the second or third day.

Silkworm gut is used for suture material in this work, and before removal a 3 per cent. solution of iodin is applied to prevent possible infection of the blood clot. The postauricular wound heals in a few days, and as the blood clot supports the soft tissues, there results little or no depression or deformity. The middle ear usually ceases to discharge in a week or ten days, though the time occasionally may be longer.

Following exenteration in radical mastoidectomy, the postauricular wound is closed completely and the mastoid cavity, tympanum and canal are packed with iodoform gauze through the enlarged meatus. The next day the gauze packing is removed and the entire cavity, to the level of the meatus, allowed to fill with blood occasioned by its removal. If sufficient blood is not thus obtained, the tragus is nicked or cut for the balance. The meatus is covered with a film of cotton or layer of sterile gauze, over this sterile petrolatum or other lubricant, and over all adjust an outer dressing which is changed daily. Sutures are removed on the second or third day. Before removing sutures I always apply 3 per cent. iodin along the wound margin and over the sutures, to avoid infecting the deeper tissues and clot as they are being drawn out.

The clot begins to disintegrate in three or four days. The disintegration may be encouraged by the insertion of small gauze or cotton wick-drains saturated with a 10 per cent. solution of phenol in glycerin.

Usually the absorption or disintegration of the clot is complete in two or three weeks, when the bony cavity should be covered with a thin, pink, granular membrane which later becomes smooth, lustrous and fibrous. Should exuberant granulations appear on the median tympanic wall over the oval and round windows, 50 per cent. silver nitrate solution is applied, after the surface has been dried.

I wish to emphasize the importance of thoroughly drying the granulation surface before applying strong silver solutions. This little point in technic prevents pain and reaction, as moisture is essential to conduction of sensation unless undue pressure is made.

The support furnished by the blood-clot before it disintegrates prevents sagging and deformity of the postauricular wound; and as healing is primary, no long, painful packing after-treatment must be endured to wreck the patient's nerves, body and purse.

A short time ago a woman from a neighboring city, who had undergone a simple mastoidectomy nearly three months previous to a visit to New York, was referred to me by a confrère for further packing while here, as there was still discharge posteriorly from the mastoid and also from the tympanum through the canal. She informed me that she had lost much weight and was a nervous wreck under the care of a nerve specialist, all because of the torturing packing after-treatment. Often she was in bed for a day following a dressing.

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[2] Holmes, C. R.: The Value of the Blood-Clot in Operations for Acute and Chronic Mastoiditis, Lancet-Clinic **109**: 64, 1913.

[3] Reik, H. O.: The Blood-Clot Dressing in Mastoidectomy Considered Physiologically, J. A. M. A. **56**: 935 (March 31) 1906.

The advantages of the modified technic of the blood-clot dressing are:

1. The opportunity to sterilize the wound with antiseptics at the time of operation.

2. The completion and maintenance of this sterility by the iodoform gauze packing of the wound for twenty-four hours, which prevents the infection from the deeper tissues that may occur from the operative reaction drainage when the clot is inducted at the time of the operation.

3. Its simplicity and effectiveness, which enables the average surgeon to use it successfully in or out of hospitals.

REPORT OF CASES

Numerically, the cases in this initial report are far too few to permit sweeping deductions. But with practically a hundred per cent. of primary healing without deformity, quick convalescence, no painful after-treatment, and marked improvement of hearing, even in this very limited series of both acute and chronic cases, with the exception of one acute case complicated with large subperiosteal and perisinuous abscesses, plus a sinus thrombosis in an alcoholic and syphilitic that healed with but slight deformity at the lower angle of the wound where the clot broke down, I am prompted to make this early report, at what seems to be an opportune time, as mastoiditis is prevalent among our soldiers in camp and field. Excepting the acute case with the sinus complication when, as in brain and meningeal complications, the advocates of the blood-clot method advise leaving the wound open, my percentage is perfect in eight consecutive cases from May 19 to August 15.

Case 1.—M. L., aged 30 years, underwent simple mastoidectomy, May 19, at the New York State Hospital, Central Islip, L. I., for acute mastoiditis complicated with a large cervical glandular abscess. The mastoid wound was packed with iodoform gauze and closed to the lower angle. The dressing was removed in twenty-four hours and the mastoid cavity allowed to fill with blood and the lower angle of the wound closed. The mastoid wound completely healed and there was no discharge from the ear at the end of seven days.

Case 2.—B. H., girl, aged 11 years, was admitted to the Polyclinic Hospital, June 5, on account of reinfection following an acute mastoidectomy about six months before. A simple mastoidectomy was performed. The tympanum was flushed with alcohol followed by salt solution. The mastoid wound was packed with iodoform gauze and closed to the lower angle. The gauze was removed next day, the wound was allowed to fill with blood, and the lower angle was closed. The postauricular wound healed in six days, but the ear was not dry until two weeks later.

Case 3.—L. C., boy, aged 9 years, admitted to the Polyclinic Hospital, July 3, had a radical mastoidectomy following incomplete operation five months before. The postauricular wound healed in five days. As the eustachian tube failed to close, some mucous discharge remains at the tympanic orifice.

Case 4.—J. C., girl, aged 5 years, admitted to the Polyclinic Hospital, July 4, was operated on the following day. A simple mastoidectomy was performed, the tympanum was flushed with alcohol followed with physiologic sodium chlorid solution, and the mastoid wound was packed with iodoform gauze and closed to the lower angle. Next day the packing was removed, the clot admitted, and the lower angle of the wound closed. The mastoid wound was healed in five days, and the ear was dry in two weeks.

Case 5.—C. G., man, aged 38, admitted to the Polyclinic Hospital, July 19, had acute mastoiditis complicated with a large subperiosteal abscess and a large perisinuous abscess exposing it over a large area, plus a sinus thrombosis. A simple mastoidectomy was performed; the tympanum was flushed with alcohol and salt solution, the sinus incised and the clot above and below turned out until free bleeding occurred. The sinus and mastoid wounds were packed with iodoform gauze and the upper half and posterior extension of the wound closed. In this case the gauze was allowed to remain four days, when it was removed and the wound inspected and packed again for twenty-four hours. Then the packing was removed and the clot inducted, the blood being obtained by means of a deep nick or cut with scissors in the lower end of the anterior wound flap. The lower half of the mastoid wound was then closed by means of adhesive strips, an outer dressing applied, and this changed daily. Six days later, or on the eleventh day following the operation, the ear was absolutely dry and the mastoid wound apparently sound, as the surface was healed. At this stage, however, the lower angle of the wound with that portion of the clot broke down, and after ten days finally healed with only a slight depression. In the meantime the ear remained dry.

This case is unique, and I regard it phenomenal, in that all operators who have employed the blood-clot dressing are agreed that in sinus, brain and meningeal complications the cases should be treated by the open method and packed. Moreover, this patient was alcoholic and syphilitic.

Case 6.—S. H., woman, aged 28, admitted to the Polyclinic Hospital, July 30, and discharged, August 7, had a secondary radical mastoid operation. The posterior wound healed in five days, and the ear was dry in seventeen days.

Case 7.—M. V., man, aged 26, admitted to the Polyclinic Hospital, August 2, and discharged, August 6, had a radical mastoid operation nineteen years previously, but the wound never healed. Moreover, there was a large opening the size of a dime behind the ear. A secondary radical operation, plus a plastic operation to close the postauricular opening, was performed and the mastoid wound cavity packed with iodoform gauze through the external meatus. The following day the iodoform gauze was removed and the clot inducted. The posterior wound healed in five days, when the patient left the hospital. One week later with the disintegration of the clot and the lack of its support, the posterior wound in this case broke at one point on account of the lack of vascularity of the scar tissue in the flaps from the first operation. Under local anesthesia the scar tissue was trimmed out and the margins of the flaps sutured. Healing occurred in five days but with slight depression.

Case 8.—E. N., woman, aged 28, had a classic radical mastoid operation at the New York State Hospital, August 4. The wound cavity was packed with iodoform gauze, which was removed next day and the clot admitted. The wound healed by primary intention and the ear was dry in fifteen days.

Case 9.—J. H., man, aged 26, was operated on at the New York State Hospital, Central Islip, L. I., August 15, secondary to a radical operation ten years before, which never healed or ceased to discharge. During the operation the sinus was injured and on this account the iodoform packing was left in for three days, when it was removed and the clot inducted. Primary healing of the wound occurred, and the ear was dry in twenty days.

42 West Seventy-Seventh Street.

Tuberculosis and War Risk Claims of Soldiers.—According to Col. Charles E. Banks, chief medical adviser of the War Risk Insurance Commission, approximately 50 per cent. of all claims for war risk compensation are based on tuberculosis. In about 50 per cent. of the soldiers discharged from the Army for disability, tuberculosis is the cause.

THE VALUE OF CHEST FLUOROSCOPY

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In the first draft quota (of about 50,000 men) inducted into the military service at Camp Lewis, the roentgen-ray staff of the base hospital made about 5,000 fluoroscopic chest examinations, with the cooperation of the president of the tuberculosis examining board. As our equipment and organization at that time were not adequate, we have no data to present covering this work.

April 1, 1918, we installed a fluoroscopic outfit at the mustering office for performing work there, in conjunction with the tuberculosis and the cardiovascular boards. It should be observed that the fluoroscopic examinations undertaken were intended not only to confirm the clinical diagnosis of tuberculosis but also for the recognition of abnormal chest conditions that might exist and be overlooked on physical examination. In the event that any abnormality was discovered on screen examination, the man was thereupon referred to specialists for reexamination. This proved of decided advantage to the president of the tuberculosis examining board on account of the fact that noise and haste do not improve the ability of the clinical examiners.

From April 1, 1918, to Aug. 10, 1918, we screened 13,893 chests. Our equipment consists of the special type 3-inch self-rectifying Coolidge tube actuated by the standard bedside unit. The Edwards screen is used and affords a very sharp, contrasty illumination. We have found that in order to get the maximal diagnostic assistance, first class equipment is essential. The tube must afford the smallest focal spot and the screen must be the most brilliant with no lag.

To achieve greater efficiency it was necessary to adopt a standardized nomenclature and routine. According to our routine, ten patients, stripped to the waist, are admitted simultaneously to the fluoroscopic room. After completion of each examination a blue light, suspended over the fluoroscope, behind the operator, controlled by the stenographer who records the findings, is turned on to permit rapid change of patients and to facilitate the penciling of areas on the chest requiring reexamination or reference to the cardiovascular board.

The stenographer at the mustering office makes two typewritten copies of each dictation, with the name of the operator on each, one for filing with the tuberculosis examining board, the other for the roentgen-ray department. The findings are also tabulated in a ledger to check the work of each operator.

The amount of fluoroscopic work that can be properly done by one operator is limited. An efficient fluoroscopist should average sixty examinations an hour. Experience has shown, however, that to avoid undue fatigue he should confine himself to a maximum of two hours, the best procedure being to divide the work into two periods of an hour each, one in the morning and one in the afternoon.

The draft quotas have arrived at Camp Lewis at the rate of about 10,000 a month, and have been examined, for the most part, during the first ten days, averaging 1,000 recruits a day. Of these about 250 have been eligible for screening. Our staff has been obliged to work at top speed averaging ten days a month. During the subsequent twenty days the daily fluoroscopic examinations have been from forty to sixty, including late arrivals, reexaminations of suspicious cases, and chest fluoroscopies of all pneumonia, influenza and measles patients.

WHEN FLUOROSCOPY SHOULD BE UNDERTAKEN

Our experience has demonstrated that practically 25 per cent. of all men between the ages of 21 and 31 should be subjected to thorough examination for the detection of possible chest abnormalities. Such examination should be undertaken in cases presenting any of the following points, which have been formulated by the president of the tuberculosis examining board:

A. History of prolonged contact with, or death in the family from, tuberculosis.

B. Inability to work because of ill health.

C. Well defined history of previous pleurisy, pneumonia, frequent or protracted colds, typhoid fever, or any other past illness of prolonged duration which might have constituted (or indicated) tuberculosis, such as prolonged cough accompanied by expectoration, hemorrhage from the lungs or expectoration of bloody sputum, loss of weight or strength, fatigue, night sweats, etc.

D. Existing cervical adenitis, tuberculosis of the bones or joints, or rectal fistula.

E. Every asthenic case and all cases in which the physical condition is manifestly below par, or giving evidence of lack in stamina or resistance.

F. All cases of chest deformity, scoliosis, kyphosis, funnel chest, barrel chest and flat or pigeon breast.

G. All cases in which physical examination reveals:

1. Impaired resonance on percussion.
2. Increased transmission of voice sounds, over areas in which these are not normally increased.
3. Abnormal breathing, such as sharpened vesicular or rough inspiration, over areas in which this is physiologically abnormal, even though no râles are detected.
4. Râles.
5. Fixation of the lung border.

RECOGNITION OF TUBERCULOSIS

Out of a total representation of 13,893 chest fluoroscopies, 425 patients were rejected on account of pulmonary tuberculosis. We are unable to claim recognition of all these cases, but a considerable percentage have likewise failed to be recognized by the clinical examiners of the tuberculosis board, including a number of unmistakable cases which have been detected by the screen. The very thorough performance of this system is evidenced by the fact that a very few cases of tuberculosis, overlooked in our mustering office work, have been admitted as such to the base hospital after being mustered.

We are not only convinced that, with careful examination, very few cases of tuberculosis will pass the roentgenologist unrecognized, either as such or presenting definite abnormalities that prompt him to send the subject to the special examiners, but also know that fewer cases will thus be overlooked than by clinical examination, particularly when the clinician is unable to eliminate haste and noise. The physical signs in the case of chronic and inactive fibrocaseous tuberculosis are minimal and susceptible of recognition only by the experienced clinician, but the screen findings offer unmistakable evidences of the abnormality in question.

We have been very careful not to diagnose tuberculosis unless the roentgenologic evidence is unmistakable. The argument appears to be current among clinicians that screen findings do not offer incontrovertible evidence of a tuberculous condition, and that a positive diagnosis of tuberculosis in the absence of excavation is impossible. We are of the opinion that this view arises from the lack of familiarity with the technic of chest fluoroscopy or because of an inferior tube and screen. The finding in certain types of pneumonia present almost, although not the same, picture.

The percentage of unmistakable cases of tuberculosis overlooked by the clinicians and detected fluoroscopically is difficult to estimate accurately, since a great many histories mention only slight impairment, râles that are not constant, diminished breath sounds, slightly increased resonance, and fixed diaphragm and other physical signs, which, while they may be associated with tuberculosis, are not necessarily symptomatic of such process. In such cases, in the absence of definite notation of a tuberculous process or of its location and other relevant data, we have been inclined to give the clinicians due credit. Such conditions, in the event of the tuberculous process being inadequately described, or slightly doubtful and not susceptible of verification by the fluoroscopist owing to the lack of time and other factors, we have classed as suspected or as extremely suspicious, depending on the degree of abnormality accurately described by the fluoroscopist. Our screen findings in connection with 425 cases of rejection on which our discussion rests we have thus tabulated:

Unmistakable pulmonary tuberculosis—clinical verification unnecessary—248 cases, or 58.3 per cent. Extremely suspicious of pulmonary tuberculosis—clinical verification necessary—89 cases, or 20.9 per cent. Suspicious—clinical verification necessary—31 cases, or 7.2 per cent. Abnormalities in illumination, haziness (general or localized) combined with diaphragmatic limitation, adhesions, marked calcification areas, etc.—clinical verification essential and necessary—32 cases, or 7.5 per cent. Unrecognized by the fluoroscopist (no abnormality whatever noted), 13 cases, or 3.06 per cent. As regards our cooperation with the clinicians in connection with chest examinations, the following supplementary comments may be made: A great many subjects may be returned for special clinical reexamination even when the screen has detected only vague abnormal shadows, such as slightly reduced apical illumination or increased visibility of the secondary bronchi. Special attention is directed not only to the different degrees of illumination but also to the position of the diaphragm, heart and trachea, in connection with the various degrees of scoliosis, with a view of enabling the clinician better to account for the increased vocal fremitus, bronchial breathing, etc., associated with those cases.

ADVANTAGES OF FLUOROSCOPY

We come to the consideration of the relative advantages of fluoroscopy and the reason the highly important character of its rôle in chest examination should receive more widespread recognition than heretofore. By the way of preface it may be observed, once for all, that this report is submitted as a plea for a more thoroughgoing use of the fluoroscope in wholesale chest examinations.

In determining the chronicity of a given lesion, observation of the diaphragmatic excursions and separation is a factor of the first importance. The greater the area of parenchyma destroyed by the tuberculous process, the greater is the degree of lagging presented by the corresponding portion of the diaphragm in deep inspiration. The same holds true of the intercostal separation. It is difficult to ascertain even with the use of stereoscopic plates the exact location of a pleurodiaphragmatic adhesion. Furthermore, as many subjects are apparently unable to inspire deeply, a plate does not show the diaphragm well separated, whereas a definite idea of the excursion and separation is obtained by directing the patient to cough violently behind the fluoroscopic screen.

The extent of pleuropericardial adhesions can be determined more definitely by the screen method, as the heart excursion on deep inspiration can be estimated. Encapsulated pleural effusion can be localized about as readily by fluoroscopy as by stereoscopic plates, as the oblique view is obtainable and as the nearer the shadow is to the tube the larger it appears; and vice versa, if the shadow in question is larger when the patient is facing the operator than when turned around, the shadow is posteriorly situated. An oblique view determines its proximity to the chest wall. Also if fluid is not tightly encapsulated or is free on the pleural cavity, its upper level maintains a parallel plane with the floor when the patient flexes his body to the right or the left. This is also obviously true of lung abscesses and excavations that contain fluid.

We have on several occasions been at a loss to differentiate a uniform interlobar thickened pleura from a localized pleural effusion, and determined the exact condition only after both screening and roentgenography. Excavations that do not contain fluid almost always "light up" on coughing and are thus differentiated from circular pleuritic adhesions. Retraction or displacement of the heart, mediastinal contents and trachea (if only slight) are more definitely recognized by fluoroscopy, because not even the most carefully trained manipulator will uniformly secure the correct relation between the patient and plate; and if the tube is centered ever so slightly to either side of the midvertebral line, the distortion is very marked. In making many plates daily this will happen frequently. Also the patient may assume a scoliotic position with consequent lessened degree of illumination of the corresponding apex.

The posterior mediastinum is readily viewed by turning the patient obliquely and should invariably be done. Dilatation of the aorta, posteriorly, is not even recognized by stereoscopic plates. The screen is particularly to be preferred to plates in cardiovascular examinations. Orthodiaphragms, accurately made, show the exact cardiac area with no distortion or exaggeration whatever. We have discovered several cases of marked dilatation of the aorta that showed very few clinical signs; three cases in particular showed no evidence of abnormality except tracheal tug and accentuation of the second aortic sound on careful clinical reexamination.

It is very important to observe the degree of illumination of the apexes, the diaphragm being cut down to a horizontal rectangular slit and both viewed at once, the patient's head being directed forward with the back to the operator and the screen. The slightest difference in the degree of illumination should be carefully noted, it being remembered that slight increase in blood or fibrous tissue causes considerable haziness of the apex. Occasionally a brilliant illumination of a tuberculous apex will be seen, the result of compensatory emphysema. This phenomenon accompanies old fibrous processes, particularly those centrally located, the surrounding air sacs becoming dilated. Scoliosis from contracture of the chest wall will decrease the degree of illumination.

ABNORMALITIES DETECTED

There were in the whole series five cases of unmistakable bronchiectasis detected by the screen and verified by the plate and the clinician. The characteristics are as follows: There is a marked increase in density along the course of the secondary bronchi, the result of fibrous tissue changes. The dilated spaces in the bronchi vary greatly in size and shape and are observed as clear areas, rather circumscribed as to outline, either cylindric, oval, fusiform or presenting a sacculated appearance, resembling a bunch of small grapes, depending on the size of the secondary bronchi involved and the degree of obstruction.

One contingent of stockmen from an alkali district presented a very marked increase in visibility of the bronchovesicular tree, the result of dust deposit. We returned a large percentage of these men for reexamination by the special clinical examiners, and the clinical symptoms were particularly negative. Pneumonoconiosis is readily recognized as an abnormality but is differentiated from the chronic bronchitis and peribronchial tuberculosis only by plates and clinical study. Of the 425 cases, eight presented a unilateral pleural effusion. The condition was very chronic, and without exception the patient was unaware of the condition. We have studied four cases of spontaneous pneumothorax. We have found that about one man in 3,000 has a complete visceral transposition. We have in every case determined the stomach transposition by giving barium or observing the location of the gas bubble. In one case, pleuropericardial adhesions had rotated the apex forward and to the right, presenting clinically a cardia dextra; but the true condition was readily determined by the screen. Forty-one cases showed retraction of heart or trachea, which was very marked. Retraction was not always mentioned if the case was unmistakable, on account of necessity for haste.

In our work at the base hospital, we have detected one case of undoubted metastatic sarcoma of the lungs, presenting diffuse lymphatic distribution in contradistinction to circumscribed changes in the lung parenchyma. In our series of 18,893 examinations, many postpneumonic abnormalities were detected. These consisted of pleural thickening, interlobar adhesions (found for the most part on the right side and evidently anteriorly between the upper and middle lobe), pleurodiaphragmatic and pleuropericardial adhesions, organized encapsulated pleural effusions, and mediastinal retractions and displacements, the result of adhesions. Also, many cases were referred to the cardiovascular board on account of abnormality in configuration of the heart and mediastinal silhouettes. Two identical cases of diaphragmatic hernia were found, in which a much dilated diverticulum of the splenic flexure was present in the chest cavity. Extreme atelectasis was present with clinical findings that varied, depending on the quantity of gas in the diverticulum and consequent pressure on the lung. The condition in each case followed injury to the diaphragm, the result of rib resection.

CONCLUSION

We wish again to recall that fluoroscopy should not be considered an adjunct in chest diagnosis, but should primarily be used to detect chest abnormalities, especially in wholesale examinations when the clinicians are compelled to devote only a few minutes to each subject.

PNEUMOBACILLI AS COMPLICATING ORGANISMS IN INFLUENZAL PNEUMONIA *

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The bacteriology of the pneumonia of the recent epidemic has dealt, principally, with influenza bacilli, pneumococci and hemolytic streptococci, but several other organisms have also probably played a part in producing the complicated lung lesions. In this note, we wish to call attention to the *B. mucosus-capsulatus* group. The importance of recognizing these organisms is twofold: (1) In some cases they have a pathologic significance; (2) in many other cases they are probably harmless or terminal invaders; but in smears and sections, they may be mistaken for influenza bacilli.

No final answer has apparently yet been given to the problem of correlating the unusual lung lesions of this epidemic with the bacteriologic findings. Without entering into a full discussion of the subject, we may say that our experience, which includes cultures from lung punctures made during life, has led us to adopt the following working hypothesis: Influenza bacilli, so called at least, are the primary cause of the bronchiolitis and hemorrhagic pneumonia. In uncomplicated cases, the patient recovers or dies without any other specific lesion. But uncomplicated cases are rare, and secondary invasion usually occurs by pneumococci, streptococci or other organisms that may happen to be in the nose or mouth. These organisms produce their specific tissue reactions which, however, are not always typical on account of the underlying influenzal lesions. Pneumobacilli produce a patchy consolidation which, by coalescence, resembles that of lobar pneumonia.

Our attention was first directed to the *B. mucosus-capsulatus* group by the findings in a patient who died early in the epidemic. The case was a typical one of pneumonia following influenza. The lungs showed a diffuse hemorrhagic pneumonia with patches of consolidation, especially in the lower part of the left lower lobe. Cultures from the lung and heart's blood gave only the Friedländer type of organisms. Sections showed a large number of gram-negative bacilli in the alveoli. Sections of the hemorrhagic areas were typical of the congestion, hemorrhage and edema of the epidemic; sections of the consolidated areas showed the alveoli filled with desquamated epithelium and leukocytes of the mononuclear type.

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* From the Laboratory Service of the Walter Reed General Hospital.

A series of inoculations was then made from consecutive necropsies of 1 to 2 c.c. of lung juice, subcutaneously and intraperitoneally, in guinea-pigs. Twenty-seven out of thirty animals died in from twenty-four to forty-eight hours with an infection of the Friendländer type. The same group of organisms was found in smears and cultures of the lung juice, along with pneumococci, streptococci and staphylococci, often in very large numbers.

The organisms of this group are known to be frequent inhabitants of the nose, and in a series of fourteen postmortem sinus examinations, they were found seven times, most frequently in the sphenoid sinuses.

These findings have led us to regard, with some qualifications, the significance of cultures of the lung after death, as many organisms can apparently invade very quickly. Cultures of material obtained by lung puncture, made during life, have more significance. In a series of ten such cultures, we have found the influenza bacillus seven times, pure in five cases and combined with pneumococci, Types II and II irregular, in two cases; in one case, pneumococcus Type I was found alone. Two cultures were sterile.

Out of ten guinea-pigs inoculated with material from ten other lung punctures, made during life, one died of Friedländer infection.

We have spoken of these organisms as a group, as subdivisions by sugar reactions do not seem entirely reliable. Reactions in nine strains were as shown in the accompanying table.

SUGAR REACTIONS OF B. MUCOSUS-CAPSULATUS GROUP, WITH HISS SERUM WATER

No.	Fermentation Tubes			Mannite	Maltose	Dextrin	Inulin	Salicin	Litmus Milk
	Glucose	Lactose	Saccharose						
1	+ 40%	+ 40%	+ 5%	+	+	+	0	+	+
2	+ 30	+ 20	+ 10	+	+	+	0	+	+
3	+ 50	+ 10	+ 100	+	+	+	0	+	+
4	+ 20	+ 20	+ 40	+	+	+	0	+	+
5	+ 40	+ 40	+ 0	+	+	+	0	+	+
6	+ 30	+ 40	+ 0	+	+	+	0	+	+
7	+ 30	+ 40	+ 0	+	+	+	0	+	+
8	+ 40	+ 40	+ 0	+	+	+	0	+	+
9	+ 20	+ 20	+ 0	+	+	+	0	+	+

These organisms are gram-negative, nonmotile bacilli which appear very small and fine except when their capsules are stained. They grow very rapidly on ordinary mediums and produce a mucoid, sticky growth.

Whether there is a characteristic, pathologic lesion produced by this group, which can be distinguished from a pneumococcus lesion, can be decided only by more complete study of our material.

The second point we wish to make is that these organisms should not be mistaken for influenza bacilli. If the findings in smears and sections are checked by cultures, preferably on plain agar, there is little chance of error; but if smears, for example, of sputum or washings of peritoneal exudate of a mouse, are examined only by microscope, mistakes might easily occur. The organisms of this group are much smaller and finer than one might suppose from the character of the growth, and they resemble the influenza bacillus quite closely in most preparations. The same is true of sections.

EPIDIDYMITIS AS A COMPLICATION OF MENINGITIS

A STUDY OF TWENTY-FOUR CASES*

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As a feature of meningococcus sepsis, epididymitis has heretofore been little noted. At Camp Jackson, however, during the epidemics of the past year, it has assumed decidedly an important place in the list of complications of meningitis. In one series of 290 cases, it occurred in more than 3 per cent. During a sporadic outbreak occurring during October, 1918, it has been much more frequent. In this series of thirty-six cases, more than a third of the patients developed epididymitis as a complication during their convalescence. So frequently has it occurred, and so typical is its onset and its course, that it is with us beginning to assume almost the dignity of a symptom rather than of a complication.

So far as we have been able to determine clinically, it is an epididymitis without definite orchitic involvement. Certainly if the latter occurs at all, it is only slight and transient. The picture is that of a hard, sharply demarcated epididymis, with the globus major as the primary focus in practically all of the cases. The process quickly extends to the body of the epididymis. The tunica vaginalis testis usually contains a little fluid, its presence being proved by transillumination.

The cause of the complication is still in doubt. Our cases of meningitis are all in men between 20 and 30; that is, at the age of greatest sexual activity. All are treated by massive intravenous doses of antimeningococcus serum. Inquiries, however, in regard to its incidence in cases of pneumonia treated by serum in virtually the same way, are negative; it does not occur. The nature of the lesion; its localization in the epididymis, would certainly point toward its being septicemic in its origin. Our records show as a matter of fact that 70 per cent. of the cases had a positive blood culture; 20 per cent. showed a negative blood as well as a negative spinal fluid. The other 10 per cent. showed the meningococcus present in the spine; that is, the organism had reached the stage of localization and was no longer a systemic invader.

From these statistics one would expect that the onset of an epididymitis would be a danger signal. As a matter of fact, it is not. There has been no case of relapse following this complication. Furthermore, there is no relation between the severity of the clinical features of meningitis or of sepsis, and the occurrence of epididymitis as a complication. Some of the mildest cases of meningitis show most marked epididymal involvement.

Apparently venereal diseases are not factors in the causation of this complication. Venereal history was elicited in 32 per cent. of the cases. Certainly none of this series of twenty-four had active gonorrhea. It seems, in passing, reasonable to assume that the meningococcus, being so close a relative to the diplococcus of Neisser, may have also a localizing affinity for the epididymis.

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* From the Medical Service of the Base Hospital.

The accompanying table outlines cases taken at random from our series. As will be noted, every case in which the meningococcus was found and typed showed a Type IV meningococcus. Although we have had several cases of parameningococcus infection in our series, none of them have shown epididymitis as a complication. It is interesting to note that the Type IV meningococcus is biologically and culturally the nearest relative to the gonococcus.

The morbid anatomy of the condition is not known. No case in which it occurred has gone to necropsy. Neither has any case shown any evidences of pus formation. Puncture smears taken in four cases failed to show the presence of meningococcus. Cultures made at the same time remained sterile.

The lesion begins as a discrete, brawny induration of the globus major of the epididymis. Usually the involvement is unilateral. In 10 per cent. of our cases, it was bilateral. The inflammation very quickly extends to include the whole epididymis. There is some heat and redness, which quickly subsides. In the majority of cases there is a small hydrocele, which serves to make one think that the testicle itself is larger than normal.

The epididymis is quite tender to palpation, the upper pole being the seat of great tenderness. The testicular body is not particularly tender. There is practically no febrile rise associated with its onset; if it occurs, it lasts only a few hours and is very slight.

There is very little pain associated with the complication. As long as the patient remains still, he is comfortable. When he moves, he usually does so very gingerly. After the second day, or at most, after three days, even this slight discomfort disappears, and convalescence progresses apparently without halt.

The diagnosis is usually self evident. The very marked increase in size of one or both testicles, associated with so little pain and febrile reaction, is a very striking feature. There is none of the exquisite tenderness and pain of a mumps orchitis. Probably this is due to absence of any distinct testicular involvement. The lack of constitutional disturbance may readily cause the complication to be overlooked, especially if the patient is toxic, or the swelling and induration slight.

Its differential diagnosis has largely been given above. A few cardinal points present themselves:

1. The striking preference which the complication shows for the epididymis and especially the globus major.
2. The absence of any demonstrable venereal infection.
3. The slight pain and discomfort, and the absence of constitutional disturbance.
4. Its occurrence during the course of a meningococcus infection and especially during convalescence.
5. The lack of atrophy and the gradual return to normal of the testicle and epididymis involved, this differing most decidedly from other conditions such as mumps and the chronic infections of syphilis and tuberculosis.

OBSERVATIONS IN TEN CASES

Patient	Fever During Complication	Laboratory Data			Clinical Features on Which Diagnosis Was Made	Part Affected	Result
		Blood Culture	Spinal Fluid	White Blood Cells			
1	None	Type IV meningococcus	Type IV meningococcus	21,700	Stiff neck; hyperesthesia; Kernig; Brudzinski; fading rash	Globus major principally; both epididymides	Rapid subsidence of inflammation; no atrophy
2	None	Negative	Type IV meningococcus	......	Back and neck stiffness extreme; Kernig; Brudzinski very pronounced	Right epididymis....	Rapid subsidence of inflammation; globus major remained hard and discrete
3	None	No organisms	No organisms	23,200	Delirium; hyperesthesia; petechiae; stiff neck; Kernig	Both epididymides	Complete subsidence; no enlargement of epididymis remaining; no atrophy
4	None	Type IV meningococcus	Type IV meningococcus	35,400	Marked headache; marked neck stiffness; Kernig	Right epididymis; globus minor most involved	Globus minor remained hard and discrete; not tender; no atrophy
5	100.2 F., one day	....	Meningococcus, not typed	21,400	Macular and petechial rashes; delirium; extreme neck stiffness; Kernig	Both epididymides on left side; globus minor most involved	Inflammation subsiding; still a little tender to palpation
6	None	Meningococcus, not typed	Type IV meningococcus	......	Petechiopurpuric rash; stiff neck; Kernig; leg Brudzinski; external rectus palsy	Right epididymis....	No remaining inflammation; still slight enlargement of epididymis
7	99.6 F., one day	Type IV meningococcus	Type IV meningococcus	31,000	Petechiae; delirium and hyperesthesia; neck stiffness; Kernig; leg Brudzinski	Right epididymis....	Rapid subsidence; no remaining enlargement
8	None	Meningococcus, not typed	No organisms	37,800	Delirium; stiff neck; Kernig; Brudzinski; ill balanced reflexes	Right epididymis....	Globus major remained hard; discrete but not tender; no signs of atrophy
9	None	No organisms	No organisms	28,000	General hyperesthesia; chill, fever, vomiting; petechial rash	Right epididymis....	Rapid return to normal; no atrophy
10	99.6 F., followed by two days' fever	No organisms	Type IV meningococcus	16,400	Profuse petechial rash; general hyperesthesia; stiff neck; Kernig	Left epididymis.....	Rapid return to normal; no atrophy

A routine study of the urine in these cases fails to show any evidence of concurrent renal or bladder involvement. This is not to be wondered at, since the meningococcus very rarely shows a localizing affinity for the renal parenchyma. Blood counts taken at the crest of the epididymal inflammation showed a moderate leukocytosis. This finding is of course subject to question because of the well known high leukocyte count of uncomplicated meningitis.

Prognosis in these cases is very good. As stated above, there has been no case of death in the entire series. In those cases under observation there has been no evidence of testicular atrophy. The epididymis manifests a slow but progressive tendency to return to its normal size and consistency. In the cases observed, this change covered a period of from six weeks to three months. The globus major may remain slightly enlarged for an indefinite period. Its occurrence means nothing as a warning of relapse. Blood cultures taken during the acute stage are uniformly negative.

Treatment consists principally in leaving the patient alone. He is ordered to remain on his back and encouraged to drink plenty of water, and his emunctories are kept working at capacity. If the dragging pain is an annoying feature, the use of a towel spread between the legs or of a small pillow placed so as to support the scrotum will be found sufficient. The patient as a rule discards a suspensory very promptly if one is given him. Aside from these foregoing measures, nothing is done.

SUMMARY OF FEATURES

Attention may be called to:

1. The lack of relation between occurrence of epididymitis as a complication, and the severity of the meningococcus infection.
2. The lack of relation between the physical signs and the objective and subjective symptoms.
3. The absence of any associated orchitis.
4. The uniformity with which the complication attacks the epididymis, especially the globus major of the epididymis.
5. The comparatively quick return to normal and the absence of any tendency to atrophy, either primary or secondary.

EXPERIMENTAL MEASLES

A REVIEW *

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In view of the increasing interest in the study of measles and its complications, it may be of advantage to survey briefly the results of the efforts to produce measles experimentally. The experiments in question fall in two groups, those on human beings and those on animals, especially monkeys.

EXPERIMENTAL MEASLES IN MAN

So far as known, the first attempt to inoculate man with measles was made by Francis Home in Edinburgh in 1758. The suggestions probably came from Alexander Monroe the Second, and the purpose was not to study the nature and seat of the virus but to insure the disease "in a gentle and favorable degree" in the hope that many might "be preserved from that malignant sort which often proves mortal, and is always dangerous." Home[1] ordered a very superficial incision to be made "amongst the thickest of the measles, and the blood which came slowly away was received on some cotton." He then made an incision in each arm of the person to be inoculated, let the wounds "bleed for a quarter of an hour before the cotton was put in, that the fresh blood might not wash off, or too much dilute the morbillious matter." The cotton remained three days in the wounds.

Home inoculated fifteen children and concluded that in most instances measles developed in mild and modified form. However, there are good grounds to doubt Home's conclusion: His records show that in no case was the time between the inoculation and the supposed measles rash, which is not described in detail, more than ten days; his Case 10, which he describes as a typical measles from inoculation, "took measles again" a few weeks later; and in the event any of the fifteen children did have measles as claimed by Home, nothing is said as to what steps if any he took to exclude spontaneous infection.[2]

Besides Home, Wachsel,[3] Speranza,[4], von Katona,[5] McGirr,[6] Bufalini[7] and others[2] claim that they have inoculated human beings with measles; but in many cases the nature of the resulting disease, sometimes very mild, is not clear, and in practically all the possibility of natural infection does not seem to have been excluded.

Although Mayr[8] has given but few details about his experiments, his results seem to be accepted as trustworthy. He produced measles in six instances by the introduction into the skin of the material obtained from scratching the center of a rubeolous spot; and on placing fresh nasal secretion of early measles on the nasal mucosa, measles appeared in regular time in two of three experiments, the eruption coming out on the fourteenth day. In these cases the disease was typical though mild, and the patients are said to have remained free from subsequent attacks.

In my own experiments,[2] very special care was taken to exclude natural infection. In the first experiment, 3 c.c. of blood from a measles patient on the first day of the rash were mixed with 50 c.c. of ascites broth, and after an incubation of twenty-four hours at 37 C., 4 c.c. of this mixture were injected subcutaneously. In the second experiment, 2.5 c.c. of blood from a measles patient, taken about thirty hours after the first appearance of the rash, were mixed with 75 c.c. of ascites broth, and after an incubation of twenty-four hours at 37 C., 5 c.c. of this mixture were injected subcutaneously. In both cases the inoculated broth remained perfectly sterile, the cultures being kept under aerobic conditions. In the first experiment the temperature rose on the thirteenth day, and on the next day a typical measles rash appeared. In this case there were no respiratory symptoms at all. In the second experiment the temperature went up on the eleventh day, a mild conjunctivitis developed with a little cough and redness with increased secretion in the throat, and on the fourteenth day a typical rash came out. There was prompt recovery in both cases.

These experiments have been accepted as showing that the virus of measles is present in the blood in measles sometime at least during the first thirty hours of the rash. It is true that a doubt has been raised[9] as to the first case because there were no catarrhal symptoms; the rash was typical, however, and it is believed that naturally measles may occur without such symptoms (morbilli sine catarrho).

The most recent effort to immunize against measles by inducing a mild form of infection is that by Herrman.[10] In forty infants less than 5 months of age he gently rubbed the nasal mucous membrane with swabs

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* From the John McCormick Institute for Infectious Diseases.

[1] Home, Francis: Medical Facts and Experiments, 1759.

[2] For more details in regard to Home's experiment, contemporary discussion about them, and other early indecisive experiments, see Hektoen, Ludvig: Experimental Measles. J. Infect. Dis. **2**: 238, 1905.

[3] Wachsel, William: On Cutaneous Diseases **1**: 106, 1809.

[4] Speranza, C.: Storia del *morbillo epidemico* della provincia di Mantova nell' anno 1882, Parma, 1824.

[5] Von Katona, M.: *Nachricht von* einer im Grossen erfolgreich vorgenommenen Impfung der Masern, während einer epidemischen Verbreitung derselben, Oesterreichische *med.* Wchnschr., 1842, p. 697.

[6] McGirr, J. E.: Inocula*tion in Rubeola*, Northwestern M. & S. J. **7**: 434, 1850-1851.

[7] Bufalini, B.: Rev. Sc. d. R. acad. die Fisiscritici **1**: 111, 1869; Die Masernepidemie zu Siena vom Januar bis Mitte Juni, *1869, J.* f. Kinderkr. **56**: 282, 1871.

[8] Mayr, F.: Beobachtungen über Masern, Ztschr. d. k. k. Gesellsch. d. Aerzte zu Wien **1**: 6, 1852.

[9] Ustvedt: Norsk Mag. f. Lægevidensk. **67**: 128, *1906*.

[10] Herrman, C.: Immunization Against Measles, Arch. Pediat. **32**: 503, 1915.

on which had been collected the nasal mucus of measles patients twenty-four hours before eruption; fifteen gave a rise of temperature between the eighth and fourteenth days, and in a few instances a small number of indistinct spots were noted on the face and body between the fourteenth and eighteenth days. When more than a year old, four of these children came in intimate contact with patients with measles without becoming sick, and at the ages of 21 and 23 months two others were reinoculated without producing measles. The experiment is perhaps not to be regarded as completed because proof of immunity is not yet established.

Instances of apparent accidental inoculation of measles seem to be very rare. The case described by Michael[11] of supposed accidental inoculation with involvement especially of the inoculated arm is of doubtful nature as it may have concerned a lymphangitis.

EXPERIMENTAL MEASLES IN ANIMALS

Older veterinary writers described what they thought was measles in domestic animals, especially sheep and swine; but it is now established that it concerned other diseases.[12]

In the case of the dog brought to the notice of Chisolm[13] as an instance of measles, there is no record of any rash.

An ingenious hypothesis that mice may be a source of measles has been advanced by King,[14] but we have no experimental evidence indicating that the virus can survive and increase in this animal.

Going over the efforts to inoculate animals with measles, we find that negative results are reported by Warschawsky,[15] who injected small pigs and rabbits with blood taken in the eruptive stage, and by Pomjalowsky,[16] who injected measles blood into guinea-pigs, rabbits and small pigs.

Behla[17] placed warm nasal mucus and saliva from measles patients on the nasal and oral mucous membrane of rabbits, guinea-pigs, cats, mice, dogs and lambs, but without any positive results except for rather indefinite catarrhal symptoms. He then made a similar inoculation in a pig, 6 weeks old, after first scratching the mucous membrane with a sharp needle; on the fourth day the animal became sick with running at the nose and eyes, and on the eighth day a rash began to appear which soon spread over the whole body, and which Behla regarded as a true measles rash, especially because in a few days scaling took place. During this eruptive period, so-called protozoal bodies were present in the blood and in the secretions of the eye, nose and throat. Two large hogs also became infected presumably, so Behla concluded, from contact with the inoculated pig.

Repeating Behla's experiments, Josias[18] rubbed measles secretions over the throat, nose and eyes of several young pigs, but without any effects. He suggests that Behla may have encountered an eruptive disease natural to swine.

Geissler's[12] experiments gave only negative results. He used white sheep, swine, goats, dogs and cats, which were inoculated in various ways: Throat and nose secretions from the initial and eruptive stages of measles were smeared while still warm on the eye, nose and throat of the animals; measles secretions diluted with salt solution were sprayed into the throat; in some cases nasal mucus and crusts were rubbed into small wounds in the ears; in one sheep, fresh scales were placed in a pocket in the skin; and scales were rubbed on fresh erosions. The only changes produced were local. In the animals inoculated in the nose and throat, catarrhal phenomena were observed, but no rash.

Jurgelunas[19] inoculated blood from patients in the eruptive stage of measles into suckling pigs and rabbits, but without effect.

The animals so far mentioned do not seem to be susceptible to measles; at any rate, no one has succeeded in reproducing measles in any of them except possibly Behla in the pig; but his claim to that effect is so far without any support. It now remains to review the experiments on monkeys.

Chavigny[20] describes what he regards as a typical attack of measles in a monkey (cyanocephalus from Zanzibar) 3¼ years old, whose keeper had measles. Eight days after the keeper fell sick the monkey developed oculonasal catarrh, a mild bronchitis, and some fever; six days later a typical measles eruption appeared on the face, and then on the trunk and limbs, becoming confluent, especially on the abdomen.[21] Recovery was gradual with a furfuraceous desquamation lasting a few days. Another monkey (cercopithecus) exposed in the same way remained well.

Apparently Josias[18] was the first to try to inoculate monkeys with measles. He took the catarrhal secretion in the early eruptive period, the first or second day, and rubbed it over the lining of the nose and throat, injecting in some cases also from 0.5 to 1 c.c. of measles blood subcutaneously. In five rhesus monkeys no reaction resulted, but in three monkeys ("sajou") an eruptive fever developed "having all the symptomatology and the duration of measles." In one case the reaction developed thirty-two days after the monkey was placed in a measles ward and twenty-seven days after swabbing the nasal and oropharyngeal membranes with measles secretion, the animal in the meantime remaining in the ward and hence being exposed to direct contact; the eruption, a lenticular, macular erythema of the face and limbs, lasted about five days, and there was a slight furfuraceous desquamation; the rectal temperature in this period ranged from 39.4 to 41 C. (102.9 to 105.8 F.), and there was a persistent diarrhea. In the other two monkeys ("sajou robustus") the reaction was less severe; in one it came on thirteen days after the introduction of measles secretion, and small, red, poorly defined spots appeared on the face, which faded in a day or two; in the other, which received measles blood also, fever, coryza, and erythema of the face, neck and abdomen developed. To Josias it seemed as if the rhesus monkey was refractory to measles, whereas the "sajou," and especially the "capucin" variety, was susceptible. A rhesus ("guenon macaque"), which lived in a measles ward for six months and played constantly with the children did not fall sick.

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[11] Michael, J.: Durch zufällige Inokulation entstandener Masernfall mit hervorragender Beteiligung des infizierten rechtenarmes, Monatschr. f. prakt. Dermat. 6: 339, 1887.

[12] The literature is reviewed by E. A. Geissler in a Bern dissertation: Klinisch-experimentelle Untersuchungen über die Uebertragbarkeit der Masern auf kleinere Haustiere, 1903.

[13] Chisolm, J. J.: A Case of Measles, Followed by Deafness, in a Dog, Contracted from a Human Subject, Med. Rec. 35: 126, 1889.

[14] King, A. F. A.: Measles and Mice, Washington M. Ann. 9: 49, 1910.

[15] Warschawsky, W. M.: Zur Aetiologie und klinische Bakteriologie von Masern und deren Komplikationen, Dissertation, 1895.

[16] Cited by Jurgelunas (Note 19).

[17] Behla, R.: Ueber das Vorkommen von Masern bei Tieren, Centralbl. f. Bakteriol. 20: 561, 1896.

[18] Josias, A.: Recherches experimentales sur la transmissibilité de la rougeole de l'homme aux animaux, Bull. méd. 12: 230, 1898; Transmissibilité de la rougeole, Tribune méd. 30: 211, 1898.

[19] Jurgelunas, A.: Zur Frage der experimentellen Masern, Centralbl. f. Bakteriol., I, O. 72: 483, 1914.

[20] Chavigny, P.: Un cas de rougeole chez un singe, Bull. méd. 12: 334, 1898.

[21] "Une éruption morbilleuse typique, débutant par la face, puis s'étendant au tronc et au membres, et trés confluente, surtout sur l'abdomen."

Grunbaum[22] injected a chimpanzee with measles blood and clothed it in a measles nightgown, without any effect. His record of an experiment on another chimpanzee is as follows:

> May 22, clothed in nightgown from case of measles. No effect.
>
> June 5, swab from case of measles applied to nose and throat: Temperature, 100.2 F.
>
> June 7, coryza. Temperature, 99.6 F.
>
> June 11, slight roseola. Temperature, 102 F.
>
> June 15, rash gone. Temperature, 99.2 F.
>
> It remains doubtful whether this animal was really infected with measles. Coryza is not uncommon in the chimpanzee, although here it seemed to have a causal relation to infection.

We come now to the most important work on measles in animals, namely, that by Anderson and Goldberger.[23] These investigators produced measles in the monkey (*Macacus rhesus, cynomolgus* and *sinicus*) by the injection of blood and of nose and throat secretions of measles patients. In the case of blood, several methods of injection were used, but intravenous injections (by the external saphenous vein) came to be preferred, the amount injected varying from 2 to 5 c.c. Fresh, defibrinated blood was used most, but positive results were obtained with serum as well as with the washed corpuscles. The best results were secured with blood drawn just before or during the twenty-four hours immediately after the appearance of rash; with blood drawn later the results were more uncertain, and by about seventy-two hours after the onset of the rash the infective power seemed wholly lost. Mixed buccal and nasal secretions, diluted with salt solution and injected subcutaneously, also proved infective, but not always, being most infective early in the attack. Experiments with scales did not succeed.

No doubt a limited range of infectivity of measles blood and secretions, coupled with a variable susceptibility in the monkey, will account for many of the failures to inoculate this animal with measles.

According to Anderson and Goldberger, monkeys, when successfully inoculated, after a variable period, usually from six to ten days, develop a moderate fever, lasting from four to five days, and frequently also a more or less well marked eruption, which begins on the third day or so of the fever. Sometimes respiratory symptoms—cough, coryza, etc.—also appear. The eruption usually comes out first on the chest and abdomen, later on the thighs, arms and face, and it may then be fading where first seen. The typical eruption consists of small, red, rose-tinted or coppery maculopapular spots, which may coalesce into larger patches; on fading, stained spots may remain and a branny scaling may take place. "Some of our animals have presented as typical a picture of measles as will be seen in a well-marked case of the disease in human beings" (Anderson and Goldberger). Monkeys that passed through febrile reactions of this general character did not react to second injections of virulent measles blood; and the blood of monkeys in the midst of a reaction (not necessarily associated with eruption) would transmit the disease to other monkeys. Indeed, Anderson and Goldberger in this way passed the virus in one case through six successive monkey groups and again through three, but without any appreciable change in its virulence. They were able also to transmit the disease by contact through confinement of well with infected monkeys in the same cage. Here may be mentioned also their results from especial tests of measles virus in blood: They found that the virus is filtrable, that is, the serum of measles blood diluted with salt solution and filtered through a Berkefeld candle (size not given) remained virulent; drying blood for twenty-five and one-half hours or freezing for twenty-five hours did not destroy the virus, and some infective powers seemed to be retained by blood kept at 15 C. for twenty-four hours; heating for fifteen minutes at 55 C. destroyed the virus. Anderson and Goldberger always found that infective measles blood, monkey or human, caused no recognizable growth in glucose broth in fermentation tubes.

The results of Anderson and Goldberger are confirmed by Nicolle and Conseil,[24] Hektoen and Eggers,[25] and Lucas and Prizer.[26] Nicolle and Conseil injected measles blood drawn twenty-four hours before the eruption into the peritoneal cavity of a bonnet monkey (*Macacus sinicus*). Nine days later the monkey developed a fever, which on the second and third days reached 40 C. and which continued for six days. No eruption was observed. In rhesus monkeys injected with citrated measles blood, Hektoen and Eggers observed in addition to mild febrile reactions, accompanied in one case with a sparse maculopapular rash, also a leukopenia, principally neutrophilic and corresponding in point of time to the leukopenia of human measles. Leukopenia occurred also in a monkey injected with the blood of another monkey taken at the time of its reaction to human measles blood. Monkeys injected with human blood from other sources than measles patients did not develop any such leukopenia.

In two monkeys injected with measles serum and measles serum and corpuscles, respectively, Lucas and Prizer observed not only a measles leukopenia, typical even in details, but also Koplik spots in considerable numbers on the tenth day. There was no characteristic skin eruption, only a transient erythema of the face and forehead. On the ninth day, blood from these animals was injected into two other monkeys, and in one Koplik spots appeared on the tenth day. They point out that the occurrence of the leukopenia and of Koplik spots leaves no doubt as to the successful transmission of the disease.

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[22] Grunbaum, A. S.: Some Preliminary Experiments on Enterica, Scarlet Fever, Measles in the Chimpanzee, Brit. M. J. **1**: 817, 1904.

[23] Anderson, J. F., and Goldberger, Joseph: Experimental Measles in the Monkey, a Supplemental Note, Pub. Health Rep. **26**: 887, 1911; Experimental Measles in the Monkey, a Preliminary Note, ibid. **26**: 847, 1911; The Period of Infectivity of the Blood in Measles, J. A. M. A. **57**: 113 (July 8) 1911; An Experimental Demonstration of the Presence of the Virus of Measles in the Mixed Buccal and Nasal Secretions, ibid. **68**: 476 (Aug. 5) 1917; The Nature of the Virus of Measles, ibid. **57**: 971 (Sept. 16) 1911; The Infectivity of the Secretions and Desquamating Scales of Measles, ibid. **57**: 1612 (Nov. 11) 1911; Recent Advances in Our Knowledge of Measles, Am. J. Dis. Child. **4**: 20 (July) 1912; Experimental Measles, Proc. Philadelphia Path. Soc. **14**: 163, 1912.

[24] Nicolle, C., and Conseil, E.: Reproduction expérimentale de la rougeole chez le bonnet chinois; virulence du sang des malades 24 hours avant le debut de l'eruption, Compt. rend. Acad. d. sc. **153**: 1522, 1911.

[25] Hektoen, Ludvig, and Eggers, H. E.: Experimental Measles in the Monkey, with Special Reference to the Leukocytes, J. A. M. A. **57**: 1833 (Dec. 2) 1911.

[26] Lucas, W. P., and Prizer, E. L.: An Experimental Study of Measles in Monkeys, J. Med. Res. **26**: 181, 1912. Lucas, W. P.: Review of Recent Work on Measles, Am. J. Dis. Child. **6**: 412 (Dec.) 1913; The Value of the Blood Picture in the Early Diagnosis of Measles, Especially in Relation to the Question of Isolation, ibid. **7**: 149 (Feb.) 1914.

Jurgelunas[16] injected measles blood subcutaneously and intravenously into monkeys; he brought monkeys in contact with measles patients, and he rubbed measles mucus on the healthy as well as scarified lining of the mouth and pharynx of monkeys; but all remained well except one ("Pavian"), injected intravenously with 5 c.c. of defibrinated blood drawn the day before eruption. On the tenth day this animal was sick, the pharynx was red, and there were some small red spots on the face, abdomen and thighs, but there was no fever; death took place on the twelfth day, and the organs were found to be sterile. The eruption did not clearly resemble that of measles, and Jurgelunas regards this experiment as having given a doubtful result.

Marzinowsky[16] experimented without result on one rhesus monkey.[27]

SUMMARY

We may conclude from the results of human experiments that the cause of measles is present in the nasal secretions, scrapings of the skin (epithelial debris and blood), and the blood, during the earlier part of the eruptive stage. Attempts to produce by inoculation a mild, modified or localized form of measles have not yet given conclusive results.

The only animal proved susceptible to measles so far is the monkey, but the susceptibility is not marked and seems subject to variation. The disease in the monkey is mild and takes the form after an incubation of several days of a brief fever, with which may be associated more or less typical skin changes, respiratory symptoms, Koplik spots, and the characteristic measles leukopenia. The results in monkeys show that the cause of measles is present in the nasopharyngeal secretions and the blood at least twenty-four hours before the rash, as well as for a day or two afterward.

CHANCRE OF THE FINGERS

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Physicians, especially gynecologists and obstetricians, are particularly liable to syphilitic infection of the fingers. Nurses, one would think, are in almost the same danger in their professional work; but in them we have seen fewer instances of this unfortunate accident. Case 1 is a typical and instructive instance:

CHANCRE OF THE FINGERS SIMULATING PARONYCHIA

Case 1.—June 19, 1913, a professional nurse was referred to us for a continuance of her treatment. Toward the end of the previous February she acquired what appeared to be a pyogenic infection under the edge of the right thumb nail. Shortly afterward a similar infection showed itself under the free edge of the nail of the left index finger, presumably following a wound with a safety pin. Both nails were evulsed, May 7. In both, therefore, the suppurative process had lasted considerably *more than* two months. A characteristic papular eruption, and mucous patches in the mouth, appeared, May 26. When we first saw the patient, June 19, there was just an indication of a *fading* roseola of the palms. No other mode of entrance of the syphilitic virus than by the fingers could be ascertained by either the physician in charge of the case or by the nurse herself. The paronychias were particularly slow in healing, and the syphilitic eruption appeared at a time corresponding to the appearance of the paronychias as primary sores. That there should be two paronychias, both of which were probably chancres, was interesting and rare.

A paronychia-like chancre is peculiarly difficult to recognize, as it does not in any way resemble an initial lesion. The nail and the nail fold completely obliterate all its characteristics. An obstinate, long enduring and exceedingly painful panaritium, occurring in a physician or nurse, should excite our suspicions, and should lead to repeated examinations for spirochetes. After five weeks the blood might be examined for the Wassermann reaction. An indolent bubo at the epitrochlea or in the axilla has a diagnostic value. Any suppurative lesion of the finger, however, might give rise to such a swelling.

CHANCRE ON THE WEB OF THE FINGERS

Any sore lasting longer than an ordinary infection and situated on the dorsal surface of the web between the thumb and the index finger, or on that between the index and the middle finger in a gynecologist or an obstetrician, should give rise to the gravest suspicion of its syphilitic nature. These two localities come against the entrance of the vagina during examinations, and the skin is put on the stretch, so that any wound accidentally there is apt to be opened to its utmost, allowing an easy entrance for the virus from syphilitic lesions of the vulva or vagina. Case 2 is an excellent example of this kind of accident:

Case 2.—A physician, aged 47, consulted us, March 23, 1909, for a sore that had appeared on the back of the web between the left thumb and index finger four weeks previously. He said that it had appeared as a bleb. There was now present an ulcer with a gray floor and soft, heavily infiltrated, blue base. The patient noticed swelling of the lymphatic nodule in the left axilla four or five days after the appearance of the lesion. There was no swelling at any time of the epitrochlear lymphatic gland. Two weeks after the appearance of the sore, there manifested itself on the abdomen a bright, evenly distributed rash, like that of scarlatina, which vanished in a day or two. In still another week the patient suffered from chills and fever. The eruption for which he consulted us had appeared two weeks previously. There was present, when we saw him, a deep red papular syphilid with much infiltration, scattered over the trunk, and to a less extent on the limbs. The only lymphatic enlargements demonstrable were in the left axilla and in the groins. His temperature was 99 F. in the morning and from 100.5 to 101 in the evening, and was associated with chills without a distinct rigor. Two small faintly stained spirochetes were found in a smear from the initial lesion. None were found in smears from a papule on the arm.

In this history the time given for the appearance of the chancre was undoubtedly incorrect. It was too close to the appearance of the eruption.

One must not allow absence of enlargement of the epitrochlear lymphatic nodule to influence one unduly in arriving at a negative conclusion in chancre of the hand, as some of its lymphatic vessels pass through the nodules of the epitrochlear region, while others go direct by to the axilla. Therefore, if the chancre is in a district drained by vessels that pass directly to the axilla, the nodules at the elbow may not be swollen or indurated.

I do not know anything about the subsequent history of this case, and it dates back to the time previous to the introduction of arsphenamin and to the notable improvements in the treatment of early syphilis. Nevertheless, we now know that it would have been of inestimable advantage if the patient could have had treatment before the cutaneous eruption appeared.

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[27] A. F. Hess (German Measles (Rubella): An Experimental Study, Arch. Int. Med. **13**:913 [June] 1914) inoculated a rhesus monkey intraperitoneally with 3.8 c.c. of blood from patients with rubella, but the results were negative.

CHANCRE OF THE FINGER

A chancre, no matter in what situation, usually ulcerates, but it does not do so necessarily, and Case 3 is an instance in which it constituted simply an extensive infiltration:

Case 3.—Feb. 25, 1910, a physician consulted us for an eruption which he first had noticed about four weeks previously. The eruption was a characteristic papular syphilid, not itchy, and appeared to come out suddenly on the forehead, back and chest, and scatter down sparsely over the arms. There were a few thinned out areas in the hair of the scalp posteriorly, and there was a mucous patch on the right tonsil. Four days before the appearance of the eruption the patient had a characteristic, intense, occipital headache.

Before the previous Christmas, he had noticed a painless induration, without break of the surface, situated on the radial side of the second phalanx of the left index finger. This he cut open. There was adenopathy in the left axilla, but none of the left epitrochlea, and a very small one of the right, so that the marked lymphatic enlargement in the glands, receiving the drainage from the affected district, so valuable in hunting for the seat of extragenital chancre, was of very little aid here. The dusky induration appearing before the eruption admitted, however, of no doubt as to its being the primary lesion. There was still another peculiarity, which sometimes occurs in the primary sore, an extraordinarily long enduring dusky redness. This was noted as being still present, Aug. 2, 1912, twenty months after the inception of the chancre.

As regards the acquisition of the disease, the doctor had operated on syphilitic tonsils in a Japanese, the middle of the previous November, and, as before mentioned, the induration on the finger was noticed before Christmas.

If for no other reason than to keep one on the alert in diagnosis, the subject of the primary lesion of syphilis, as it occurs extragenitally, is well worth considering. This is especially true nowadays when the results of early treatment, necessarily dependent on early recognition, are so brilliant, and the consequences of failure to recognize this disease are now known even to the laity as being so portentous. The physician, therefore, in recognizing the true nature of the disease may make a brilliant hit, or in failing to do so may achieve a failure, which from its very nature as appertaining to an eminently chronic malady may continue a reproach during his entire life of practice.

The essential difficulty, however, of recognizing these lesions in these situations in their early stages is shown by the cases cited, for one instance occurred in a professional nurse working with a physician, and the other two were in physicians in active practice; yet in no case was the true nature of the disease suspected until the appearance of the eruption.

323 Geary Street.

War Training as a Postgraduate Course.—No postgraduate course can equal the actual benefits to the professional man, no clinic can complete a system of organization so thoroughly as the war training is going to show the way. It will teach a system of efficiency to the medical man that will be a great asset to him after returning to private life. This is surely worth the while. Incidentally, it will teach the people the significance of the medical profession and the rôle it fills in regard to health. It will teach the people, as the insurance companies already know, the benefit of a thorough physical examination in both health and disease, especially in health.—President's Address, Minnesota State Medical Society, 1918.

A PULSE RATE STANDARD FOR RECRUITS *

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During routine work on the cardiovascular board at Camp Lewis, many recruits were seen who complained of symptoms suggestive of circulatory disorder, although no indication of any cardiovascular defect was obtained by the methods of inspection, palpation, percussion or auscultation. In this group of cases a functional test might be expected to help in the determination of the existence and of the grade of true circulatory disability. The regulations as to the examinations of recruits provide such a test. It is based on the changes in pulse rate induced by alteration in the position of the body and by exercise. The pulse rate is taken with the subject standing. He is then directed to lie down and the rate is again counted; thereafter he hops 100 times on the left foot, and the pulse rate is counted immediately and two minutes after this exercise with the recruit in the recumbent position.

The impression, however, of those who had had most experience with this test was that no importance could safely be attached to the results obtained by it unless they showed an extreme degree of acceleration of the pulse rate on exercise and a marked delay in the return to the pre-exercise level. The great majority, therefore, of men with symptoms but without signs of circulatory disability were accepted for full military duty, though often with doubt and hesitation.

This state of uncertainty in regard to the interpretation of the results of the regulation exercise test was all the more to be regretted since Mackenzie, Lewis and others who have had a large experience in the classification of soldiers with predominantly subjective cardiac disorders have found the pulse rate reactions to the strain of physical exertion one of the most valuable of all the objective criterions that they used as aids in the disposition of such cases.

It seemed not unlikely that the difference between their opinion and ours might arise from our want of exact knowledge as to what was a normal and what an abnormal reaction to the strain of the test we used. It was with the object of obtaining this knowledge that the work here reported was begun.

METHOD USED IN DETERMINING THE LIMITS OF NORMAL VARIATION IN PULSE RATE

The limits of normal variation can be deduced from a sufficient number of observations on normal individuals by the application of statistical methods. The measure of variation here used is known as the "standard deviation." It is obtained by finding the square root of the mean of the squared deviations from the arithmetical mean of the observations. This method is the one most commonly used by statisticians and biologists for such a purpose as ours.

The usefulness of a normal standard obtained by this or any other method will largely depend on the extent to which the conditions in the group of normal individuals on whose reactions it is founded are comparable with the conditions surrounding the individuals to whom the standard is to be applied. The men for whom the standard was needed were newly arrived recruits, and "normals" were accordingly chosen from this clas sof men. They were questioned in an indirect manner as to the absence or presence of dyspnea on moderate exertion, and those in whom this symptom was absent were chosen for observation. Though this is a crude method of selection, it at least excludes the recruits with cardiac symptoms for whom the standard was especially required. The tests were made in the men's barracks between 6 and 9 p. m.

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* From the Cardiovascular Board, Camp Lewis, Wash.

A CRITICISM OF THE MANNER IN WHICH THE REGULATION EXERCISE TEST IS COMMONLY CARRIED OUT

It was obviously desirable that the exact technic of the regulation exercise test as used by local and cardiovascular boards should be followed in establishing the standard, not only because it is the authorized test and accordingly in general use, but also because of its convenience and simplicity. It requires no apparatus, no furniture beyond a table, is immediately applicable under all circumstances, is rapidly carried out, and gives a numerical value to the reaction to four changing degrees of strain. But before making any very extensive series of records, it was thought advisable to make a preliminary analysis on a relatively small number of observations. It was thought that some idea might thus be obtained as to how many normals would have to be examined in order to obtain a standard that would be of value in dealing with individual cases.

For this purpose a physiologic principle of very general application was employed as a measure of the adequacy of the data. Under the stimulus of a demand for increased work or output, the organs of the body respond with an increase in function beyond the degree of functional activity existing at the time the demand arises. With a constant stimulus the relative extent of this increase in function will depend on the level of activity of function at the time of application of the stimulus. If the stimulus comes at a time when the organ is already working near to its total capacity, the percentage of increase in function is less than that which would have been induced if the stimulus had been applied at a time when the organ was working at a subnormal level. If the heart is already beating rapidly when the regulation test is started, the percentage of increase over the initial rate will be less than if the stimulus of change of position and of hopping had fallen at a time when the heart was beating slowly. If, therefore, a series of observations on normal individuals is arranged in groups according to the lowest pulse rates, which are those taken in the recumbent position, and the average percentage increase over this basal rate of the counts made while standing, after hopping, and two minutes after hopping is found for each group and plotted as points on a chart in which the average recumbent pulse rates of the different groups is the abscissa, it will be found that the lines joining these points will form curves which fall as the resting pulse rate increases. If the number of observations is sufficiently large, factors tending to variability will neutralize one another and the curves will be smooth. If the data are insufficient, the lines joining these points will be irregular and angular in proportion to the inadequacy of the data.

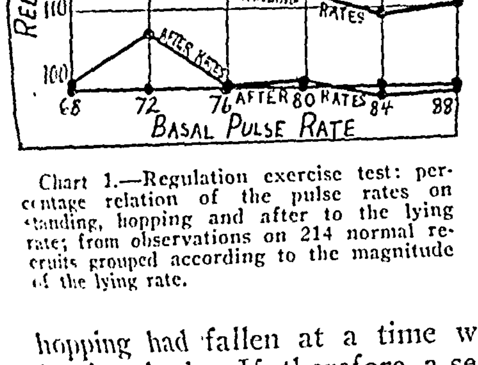

Chart 1.—Regulation exercise test: percentage relation of the pulse rates on standing, hopping and after to the lying rate; from observations on 214 normal recruits grouped according to the magnitude of the lying rate.

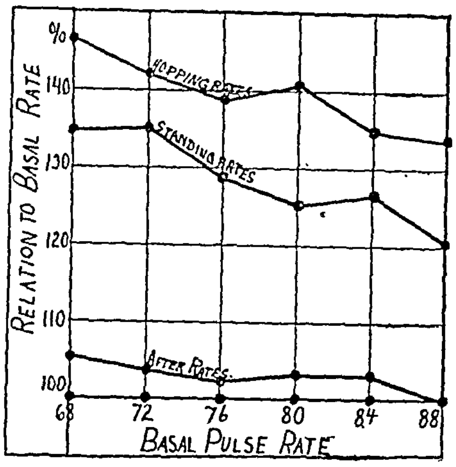

Chart 2.—Modified regulation exercise test: percentage relation of the pulse rates on standing, hopping and after to the lying rate; from observations on 214 normal recruits grouped according to the magnitude of the lying rate.

When 214 normal recruits had completed the regulation exercise test, their records were grouped according to the rates in the recumbent position, that is to say, all the men whose pulse rates while lying down were 72 were placed in one group, those whose lying down rates were 76 in another, and so on. This was the natural system of classification, since the pulse was counted over quarter minute intervals and all rates per minute were thus multiples of four. The rates obtained while standing, immediately afterward and two minutes after hopping were averaged in each group, and each average was expressed as a percentage of the rate in the recumbent position. These percentages for the groups between 68 and 88 are given in Table 1 and Chart 1. The number of cases in groups beyond this range was too small to be reliable.

It is apparent from Chart 1 that there is a considerable degree of irregularity in the curves, though there is a general tendency to a decrease in the percentage relationship as the pulse rate in the recumbent position increases. This irregularity is sufficiently marked to make it appear doubtful whether a standard obtained from normals who manifest such a degree of variability would have much practical value. The normal limits of variation might be so wide as to include all but cases with an extreme acceleration of pulse rate. Therefore, instead of continuing to amass records it seemed advisable to consider whether this variability might not have been exaggerated through

TABLE 1.—RESULTS OF THE REGULATION TEST ON NORMAL RECRUITS ARRANGED IN GROUPS ACCORDING TO THE LYING RATE

No. of Cases in Group	Average Pulse Rates per Minute				Percentage Relation to Lying Rate			
	Lying	Standing	Hopping	Afterward	Lying	Standing	Hopping	Afterward
11	68	79	97	69	100	117	143	101
16	72	87	102	77	100	121	141	107
26	76	86	102	76	100	114	134	100
39	80	90	109	81	100	112	136	101
37	84	92	107	83	100	109	127	99
27	88	97	113	87	100	110	129	99

some removable defect in the manner in which the test was applied.

When the test is judged as above in accordance with the degree of uniformity in the relationship of its different stages to one another, it is apparent that as commonly carried out the regulation test is defective. Any error in the estimation of the lying rate will lead to incorrect classifications and will tend to magnify the variability of the percentage increases produced by change of position and by hopping. It will be remembered that the lying rate is taken immediately after the recruit has changed from the standing to the recumbent position; but in this way the true lying rate is not obtained. It has been found that the rate of decrease in the pulse rate on the person's assuming the recumbent position is subject to considerable variation in different individuals. In some it occurs almost instantaneously, in others, and these comprise the majority, the fall takes place gradually. In most cases, therefore, the lying rate actually recorded represents some stage or other in the descent of the pulse rate from the standing to the lying rate. The originator of the test may have intended that a sufficient period of complete rest in the horizontal position should be allowed before the lying pulse rate was taken; as commonly carried out, however, this precaution is not observed, and the pulse rate observed immediately after lying down is the one that is recorded.

The question may be raised as to whether it is necessary to interpret the results of the test in this manner; for the results at each stage might be taken independently, and the absolute values compared with the limits of the normal for that position or exercise. There seems to be a good reason why this should not be done: The absolute pulse rate at any stage is a resultant of general nervous and metabolic factors from which the part that the cardiovascular mechanism plays cannot be disentangled. But if the resting pulse rate, no matter how many unknown factors enter into its determination, is accurately measured and taken as the foundation of the test, it becomes possible to judge the effect produced by stimuli that call especially for the coordinated activity of this cardiovascular mechanism. Standing and hopping are stimuli of this nature. They are a strain calling for a new adjustment of the heart and blood vessels. One aspect of this adjustment manifests itself in a quickening of the pulse rate over the level that obtains at rest. And it is only this excess over the resting rate that can be taken as an indication of the mode of reaction of the cardiovascular system, not the absolute rates themselves, which are largely influenced by other factors.

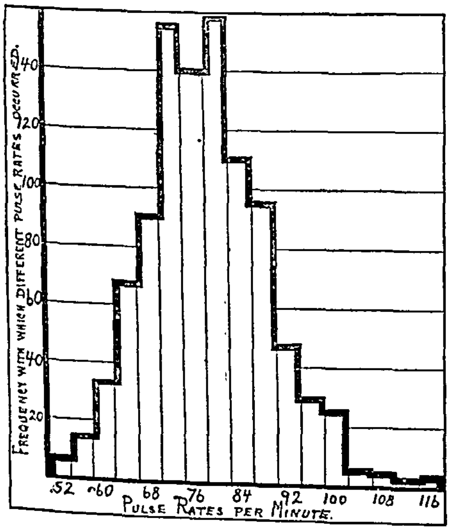

Chart 3.—Frequency distribution of pulse rates observed in the lying position in 1,000 normal recruits.

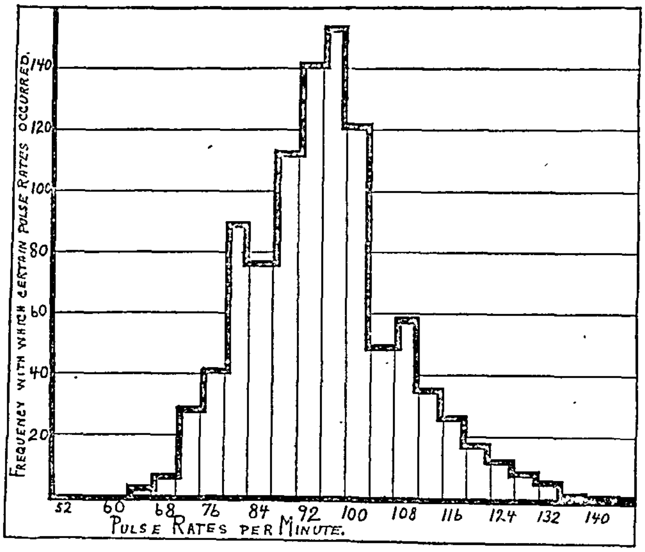

Chart 4.—Frequency distribution of pulse rates observed in 1,000 normal recruits in the standing position.

A MODIFICATION OF THE REGULATION EXERCISE TEST

The only modification required is that the subject should lie quietly on his back for a length of time sufficient to allow the pulse rate to fall to its true resting level. The probability that this modification would be found necessary was apparent before the observations were started; and in order to test the validity of the theoretical considerations on which it is founded, the same 214 normal recruits were directed to lie on their backs for at least fifteen minutes after the pulse rates for the regulation test had been recorded. The pulse rate was then counted as they lay and again immediately after they stood up. The remainder of the test was carried out in exactly the same manner as in the regulation test, the rates immediately and two minutes after 100 hops being recorded.

TABLE 2.—RESULTS OF THE MODIFIED TEST ON NORMAL RECRUITS ARRANGED IN GROUPS ACCORDING TO THE LYING RATE

No. of Cases in Group	Average Pulse Rates per Minute				Percentage Relation to Lying Rate			
	Lying	Standing	Hopping	Afterward	Lying	Standing	Hopping	Afterward
11	68	92	100	72	100	135	146	105
16	72	97	102	75	100	135	142	104
26	76	98	105	78	100	129	139	102
39	80	100	113	83	100	125	141	103
37	84	106	114	87	100	127	136	103
27	88	106	118	88	100	120	135	100

From the figures thus obtained, the percentages of the standing, hopping and after rates to the lying rate were calculated, the numbers in each class being kept for the purpose of comparison the same as in those in Table 1. These percentages are given in Table 2 and Chart 2.

When the curves in Chart 2 are compared with those in Chart 1, it is apparent that they are less irregular, though they are still far from being smooth. This may be taken as indicating a lesser degree of variability in the pulse rate reactions under the conditions of the modified test.

On account of this finding, it was decided to abandon the regulation test, and to determine the limits of variation in pulse rate reactions in normal recruits whose lying rate had been obtained after a period of absolute rest. The disadvantages of this decision were fully recognized. The test as modified ceases to be universally applicable, for in the building in which the board works it is impossible to have any considerable number of men lying down at any one time. The possibility of taking the standing rate as the basis of the test was considered, but it is impossible to standardize any method of standing. The muscular effort put into the act varies with different individuals, and the strain it induces is too variable. The conclusion cannot be avoided that the only way to obtain a true basis for the test is to precede it by a period of complete muscular relaxation.

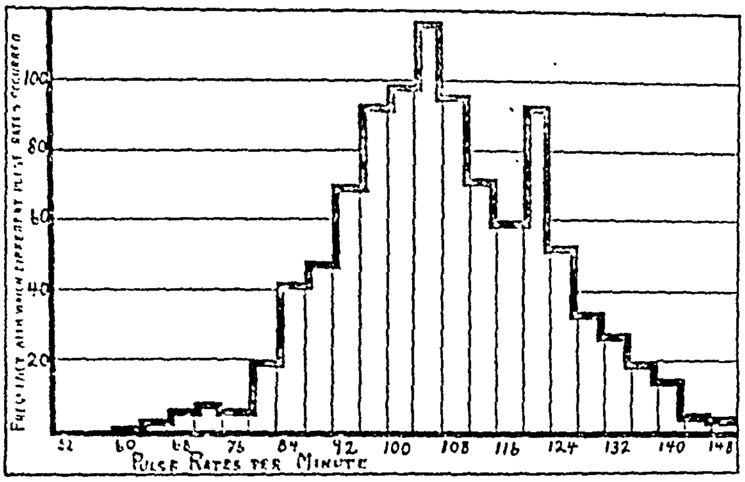

Chart 5.—Frequency distribution of pulse rates observed in 1,000 normal recruits immediately after hopping.

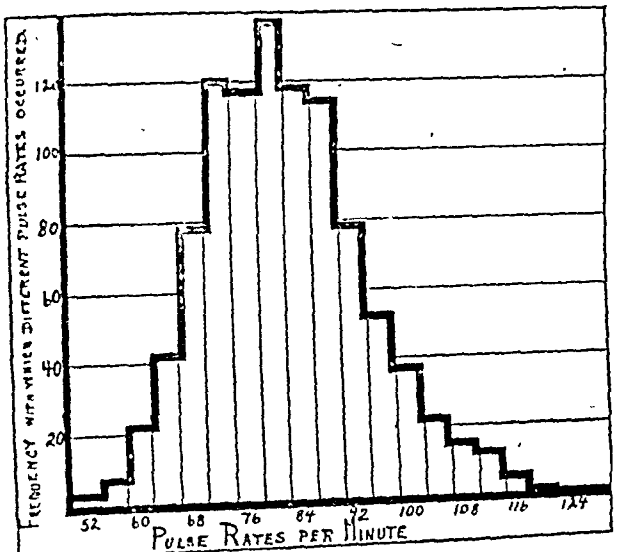

Chart 6.—Frequency distribution of pulse rates observed in 1,000 normal recruits two minutes after hopping.

THE LIMITS OF NORMAL VARIATION IN THE PULSE RATE REACTIONS OF RECRUITS TO THE MODIFIED REGULATION TEST

The pulse rates of 1,000 normal recruits were counted under the conditions of the modified regulation test. The average pulse rate lying down was 78, standing 94, after hopping 107, and two minutes afterward 82. The frequency distributions for each stage of the test in class intervals of 4 pulse beats per minute are given in Charts 3 to 6.[1]

It was shown in the preceding sections that the degree of increase in pulse rate on standing and after exercise is dependent in part on the level of the lying or basal rate. It follows, therefore, that the normal limits of variation are not to be obtained by simply finding the standard deviation of the pulse rates of all the normal recruits. The material must be grouped into classes in accordance with the order of magnitude of the lying pulse rates. Each class must then be averaged and its standard deviation found. When this is done, it will be possible to refer any subsequent record to the particular standard found in normal recruits with the same or approximately the same basal rates as in the record whose normality or abnormality it is desired to determine.

In dividing the data into classes it was thought best to use a class interval of 10 pulse beats in order that the average and standard deviations might be obtained

TABLE 3.—AVERAGE AND STANDARD DEVIATIONS OF THE PULSE RATE REACTIONS OF 1,000 NORMAL RECRUITS

Group	No. of Cases	Lying Av.	Standing Av. σ	Hopping Av. σ	Afterward Av. σ
50- 59	22	55	75 ± 6.5	87 ± 12.1	63 ± 9.5
60- 69	193	65	85 ± 9.4	98 ± 13.9	71 ± 7.4
70- 79	305	74	91 ± 9.5	103 ± 12.3	78 ± 7.9
80- 89	358	83	98 ± 9.4	111 ± 12.9	87 ± 8.4
90- 99	78	94	108 ± 11.0	120 ± 12.5	95 ± 9.3
100-109	37	102	114 ± 9.9	128 ± 9.0	104 ± 8.5
110-119	7	114	125 ± 13.4	143 ± 9.0	116 ± 5.2

TABLE 4.—UPPER LIMITS OF NORMAL IN PULSE RATE REACTIONS UNDER CONDITIONS OF MODIFIED TEST FOR BASAL RATES BETWEEN 44 AND 128

Basal Rate	Standing	Hopping	Afterward
44	77	92	61
46	79	94	62
48	80	96	64
50	82	97	66
52	83	99	67
54	85	100	69
56	86	102	71
58	88	103	72
60	90	105	74
62	91	107	76
64	93	108	78
66	94	110	80
68	96	111	81
70	97	113	83
72	99	115	85
74	101	116	86
76	102	118	88
78	104	119	90
80	105	121	92
82	107	122	93
84	108	124	95
86	110	126	97
88	112	127	99
90	113	129	100
92	115	131	102
94	117	132	104
96	119	134	106
98	120	135	107
100	121	137	109
102	123	139	111
104	125	140	113
106	126	142	114
108	128	144	116
110	130	145	118
112	131	147	120
114	133	149	122
116	134	150	123
118	136	152	125
120	138	154	127
122	139	155	129
124	141	157	130
126	142	159	132
128	144	160	134

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[1] These charts show indications of errors in pulse counting. In Chart 5, for instance, the curve of descent is broken by a marked increase in the number of pulse rates of 120 per minute. This rate as actually counted was 30 for a quarter of a minute, and the increase at this point is doubtless due to a tendency to record rates of more than 20 or less than 31 as the round number 30.

from larger groups than would have resulted had the natural class interval of 4 been adopted. The averages and standard deviations of these groups are given in Table 3 and Chart 7.

In Chart 7 the averages given in Table 3 are plotted as points on a chart in which the abscissa measures the magnitude of the lying or basal pulse rate averages, and the ordinates the average pulse rates on standing, hopping and after. The limits of normal variation for each group are given by adding each standard deviation to its corresponding average. This gives the upper limit of variation. The lower limit could be obtained by subtracting the standard deviations from the averages, but this limit is of little practical importance since it may be assumed that, in the great majority of cases at least, circulatory disability will lead to an increase and not a decrease beyond the usual pulse rate levels. The sum of the average and the standard deviation is indicated on the chart by a circle, and the lines joining the circles and points represent the standard deviations of the groups. The upper limits of normal variation for the particular basal rates given by the averages of the groups having thus been determined, an approximation to the limits of all basal rates can be obtained by the curves joining these determined limits.

It would appear from the available data that these curves may be straight lines and that the curve for each stage of the test may be regarded as parallel to the others. They have been drawn in this manner in Chart 7, and from them Table 4 has been drawn up which gives the upper limits of the normal of the standing, hopping, and after rates for any observed basal rate.

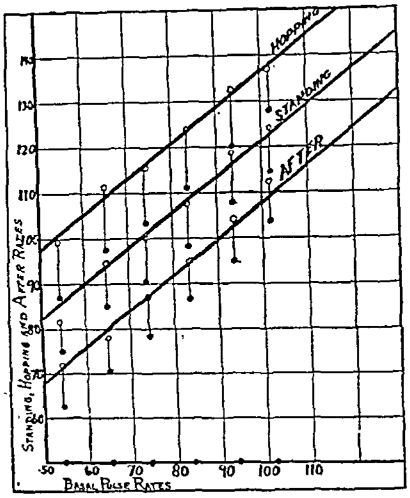

Chart 7.—Limits of normal variation, averages and standard deviations derived from 1,000 observations on normal recruits with the modified regulation exercise test, arranged in groups according to the magnitude of the basal rates. The limits of normal variation are indicated by hollow circles and averages by solid black circles. Standard deviations are shown by the line joining the averages to the limits of normal variation. The curves drawn through the points at which the limits of normal variation have been actually determined give the limits of normal variation in pulse rates on standing, hopping and after for all basal rates.

The following is a detailed account of the method used in obtaining the normal standard, and accordingly of the manner in which the test ought to be carried through with any individual whose record is to be compared with the standard:

1. The recruit lies on his back without moving for fifteen minutes. The pulse rate is then taken. If the rate exceeds 88 per minute he lies still for another fifteen minutes before the pulse is counted.

This is called the basal pulse rate.

2. The recruit rises from bed and stands up. While he is doing so the observer's fingers should be on his wrist, so that he can begin to count the pulse rate as soon as the patient is erect. He counts for fifteen seconds only.

This is called the standing pulse rate.

3. The recruit is then directed to hop 100 times on the left foot at a rate of about two hops to the second. If no one counts for him, he should be told to count the hops himself.

Immediately on the completion of the 100 hops, the recruit lies on his back in bed, and the pulse rate is counted for the first fifteen seconds after he lies down.

This is called the hopping pulse rate.

4. The recruit continues to lie on his back, and exactly two minutes after the completion of the hopping count, the rate is taken again for fifteen seconds.

This is called the after pulse rate.

The counts should begin when the second hand covers one or the other of the five-second divisions of the second hand dial. This may necessitate waiting almost five seconds in some cases, but it is generally more accurate than attempting to gage the position of the second hand between the divisions.

Some find it an advantage to set the minute hand of the watch on an hour division on conpleting the hopping count, in order to make it easier to determine when the two-minute interval has been completed.

Care must be taken to see that the minute hand of the watch does not obscure the reading of the second hand dial.

This standard is in use by the cardiovascular board, but it is too early as yet to form an opinion as to its value. It is also employed as an aid in the grading of cases of neurocirculatory asthenia, and the results are being compared with those obtained by other tests. There is some indication, furthermore, that successive tests carried out on convalescent patients may be of assistance in determining when they should be returned to duty.

When it is found that the pulse rate records of an individual exceed the limits of normal variation at any one or all of the stages of the test, it must be remembered that this simply means that he shows a greater degree of pulse rate acceleration than the great majority of normal recruits. It is not in itself an absolute indication of neurocirculatory disability. It can be of value only in association with other evidence. Indeed, it could hardly be expected that any result of absolute significance as to the effect of strain on the circulatory mechanism is to be obtained from a test in which the only measurement made is that of the pulse rate, for the pulse rate increase on change of position and on exertion is only one factor in a series of complexly interrelated adjustments. But an essential requisite of any test to be used for the purpose we had in view is simplicity and ease of application, and it is doubtful whether anything more exacting than this modification of the regular exercise test would be practicable.

Summary of State Laws on Infantile Blindness.—The reporting of babies' sore eyes to the local health officer or to a physician is compulsory in forty-one states; the reporting law is printed on the birth certificate in ten states; local health officers are authorized and required to secure medical attention for uncared-for cases, or to warn parents of the dangers and advise immediate treatment in twenty-eight states; births are reported early enough to be of assistance in preventing blindness in seventeen states; the question as to whether or not measures were taken to prevent blindness is included in the birth certificate in nineteen states; free prophylactic outfits are distributed in twenty-two states; use of prophylactic is compulsory in nineteen states, and strongly recommended in an additional four states; popular educational leaflets relating to preventable blindness are distributed by state health departments in 29 states. The National Committee for the Prevention of Blindness in its *News Letter*, December, 1918, prints a tabulated summary of state laws and rulings relating to the prevention of blindness from babies' sore eyes.

INFLUENZA EPIDEMIC AT THE CHICAGO STATE HOSPITAL

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Fifteen days following the outbreak of influenza at the Great Lakes Station, the disease made its appearance at the Chicago State Hospital. The first patient was a voluntary worker in the occupational therapy department. So far as can be learned, this young woman had not come in contact with an active case of influenza. However, she had been to Chicago. Following this case, both patients and employees rapidly began to show infection. The total number treated during the next six weeks was 507 inmates and fifty-two employees. Of the 507 patients ill with the disease, 349 were males and 158 females. The total number of deaths among the inmates was eighty-one or 16.2 per cent. The incidence of death according to sex was: males, forty-eight, or 13.7 per cent., and females, thirty-three, or 20.8 per cent.

DISTRIBUTION OF THE DISEASE

The colored population of the institution is made up of 139 people, seventy-three of the 139 being males and sixty-six females. The number of colored patients showing symptoms of influenza was not very large. Six men and seven women were admitted to the isolation wards. All the men recovered. One woman died; one developed pulmonary tuberculosis; five recovered.

The praecox group constitutes by far the majority of our population; consequently one would look for a larger number of this type involved than any other. Table 1 shows the incidence of the disease among the various psychoses:

TABLE 1.—INCIDENCE OF INFLUENZA ACCORDING TO PSYCHOSES

Psychoses	Number
Dementia praecox group	193
Epileptic	55
Alcoholic (all types)	53
Mental defective (all types)	49
Organic brain disease (including paresis)	45
Senile dementia	35
Undiagnosed psychoses	43
Manic-depressive group	34

Next to the praecox group, the epileptics were most severely affected. The males of this class more easily become victims than the females. Within the first week of the onset of the disease, the greater part of the male epileptics were confined to bed. The mortality among this type was very small.

The ages of those ill are given in Table 2; the number of days ill in the isolation ward, in Table 3.

Among the fifty-two employees who became ill, the mortality was only 3.8 per cent.

INFLUENCE OF ISOLATION

The farm ward, located some distance from the cottages and the main building, houses seventy men. These men rarely come in contact with other patients, and are outdoors most of the time. Influenza failed to claim any of this colony. Other wards in the hospital group failing to show infection were wards wherein female patients are confined. In one of these units are housed our laundry workers. The women go back and forth to the laundry four times daily. They rarely come in contact with other inmates, and only with those employees with whom they work.

The second female unit not showing infection (C W 12) constituted a group that worked in the hospital building and sleep in C W 12 at night. One of this group became infected in the following manner: One of her friends was admitted to the isolation ward with a frank case of influenza. Through a mistake the patient gained admission to the ward to visit her friend. She was discovered at the bedside without having provided herself with a mask. That night she did not return to Ward C W 12, but slept on the lower floor of the hospital building. Two evenings following her visit, she was reported to have an elevation of temperature. She was immediately removed to the isolation ward for observation. In three days she began to show signs of pulmonary involvement, and five days later she died from a bronchopneumonia. This case cannot therefore be charged to Ward C W 12.

TABLE 2.—AGE INCIDENCE

Age	Number
Under 20	20
From 20 to 30	172
From 30 to 40	118
From 40 to 50	84
From 50 to 60	64
From 60 to 70	41
From 70 to 80	5
Over 80	5

The third unit that escaped infection was Ward A 1, more or less isolated from the other wards of the main building.

USE OF THE FACE MASK

All employees, helpers, nurses and physicians in attendance on influenza patients always wore the face mask. Only three nurses became infected with influenza while on duty in the isolation ward. The attacks were mild in nature. I believe that these nurses became infected by being careless regarding the masks.

PROGNOSIS

From our observation of the cases under treatment we could not judge the patient's condition by the temperature. Some patients appeared to be comfortable with a high temperature, while others whose temperature had been normal or near normal for several days died. The pulse and respiration, like the temperature, were often misleading. Each patient had to receive as much individual attention as could be given. Epistaxis was noted in about 20 per cent. of the cases. Contrary to a statement that those cases in which nosebleed occurred had a favorable prognosis, our observation was that this condition is not a criterion on which to judge the outcome of a case. Some of the patients showing this sign died, while others recovered. It was noticed that epistaxis occurred when the temperature was high—from 104 to 105 F. In the women patients early menstruation was a feature; this was noted especially among women employees. Several of the employees describe delusional experiences while ill. During convalescence, otitis media developed in several of the inmates and employees.

TABLE 3.—DURATION OF ILLNESS*

Duration	Number
From 1 to 5 days	139
From 5 to 10 days	127
From 10 to 15 days	84
From 20 to 25 days	44
From 25 to 30 days	10

* Forty-eight patients were still in the isolation ward at the time of the compilation of this report.

EQUALITY OF DISTRIBUTION

The wards housing the more deteriorated type of cases did not show any more infections than those in which the more robust inmates reside. In a ward known as D W 3, there are housed seventy-four male patients of various types, showing deterioration. From their lowered mentality and physical status, one would naturally expect that among this type of individuals infection would find many victims. During the epidemic this ward was watched with a great deal of anxiety. When the wave of the epidemic had passed, we were pleased to note that out of the seventy-four inmates of this ward, only eleven were sent to the isolation wards suffering from influenza.

How to explain why we did not have more cases of illness among those of lowered mental status, which consequently lessens resistance, still remains one of the mysteries of the epidemic. In Wards C W 13, 14 and 15, known as the "industrial wards," housing male patients who are outdoors a great deal, the number of cases of infection was small. The ward showing the most cases was Ward D W 4, housing the epileptics.

The infection was, however, distributed throughout the institution. It is difficult to understand why we did not have more cases. Perhaps this was due to the fact that persons showing signs of illness were immediately transferred to isolation wards, and all precautions were taken to prevent further transmission of infection.

RECURRENCES

Two persons who had had influenza in the first epidemic were readmitted to the isolation wards: In the first patient, admitted for the first time, October 9, the disease ran a typical course, and the patient was discharged, October 18. The patient was readmitted, December 5, with frank influenza, and the temperature ran an irregular course until December 15, since which time it has been normal. The second patient, first admitted to the isolation wards, October 17, and discharged, November 8, was readmitted, December 15, and died, December 23, of bronchopneumonia.

CONTRIBUTION TO THE ETIOLOGY OF YELLOW FEVER *

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During the past four months (from July to November, 1918), I have been engaged at Guayaquil, Ecuador, under the auspices of the International Health Board of the Rockefeller Foundation, in the study of the etiology of the yellow fever prevalent there. I wish at this time to record briefly some of the more significant results of this study, pending the fuller publication of the details which will follow.

In the later paper acknowledgment will be made of the cordial and indispensable official and professional cooperation of the National and Municipal Health authorities in Guayaquil, especially that of Dr. W. Pareja, the director of the Yellow Fever Hospital, and Dr. León Becerra, director-general of the health department of Ecuador.

In six out of twenty-seven cases studied, the injection into guinea-pigs of the blood of yellow fever patients, after a period of incubation, induced in these animals first a rise of temperature with the appearance of rapidly increasing albumin and casts in the urine. Simultaneously the conjunctivae, ears and soles became highly hyperemic, and leukopenia set in. A fall of temperature by lysis soon occurred, with the development of distinct and gradually deepening yellow pigmentation of the sclerae, skin and viscera. During this period hemorrhages from the mucous membranes of the nose, mouth and gums occasionally took place, and petechial hemorrhages of the skin, muscles, heart and kidney were often observed. Congestion and hemorrhages were almost always present in the mucous membranes of the gastro-intestinal tract, giving the contents the dark, tarlike appearance of so-called black vomit, and the lungs showed large and small hemorrhages. The liver and kidneys showed petechial hemorrhages and evidences of degeneration. Intense general jaundice, cholemia, oliguria with abundant albumin, casts and bile pigment, and sometimes anuria, marked the later stage of the infection. With the development of these manifestations, the animals usually died in coma or convulsions.

Dark field examination of the blood, liver and kidneys of these inoculated animals revealed the presence of an organism whose morphologic characters closely resembled those of the organism (*Leptospira*) previously described in cases of infectious jaundice.[1]

By the use of special methods the organism found in the blood, liver and kidneys of animals inoculated with the blood of yellow fever patients has been obtained in pure culture.

In some instances the direct dark field examination of the blood and liver of yellow fever patients in Guayaquil showed the presence of a leptospira indistinguishable from that described as occurring in the blood and viscera of the experimentally infected guinea-pigs. By special methods, pure cultures of this organism were obtained directly from the blood of yellow fever patients in a limited number of cases.

This organism does not grow on ordinary bacterial culture mediums, and when grown on the special mediums it induces no macroscopic changes of the latter and hence may be easily overlooked. Only by a very thorough dark field examination of such cultures can the occurrence of growth be ascertained.

By the inoculation of the blood and emulsions of the liver and kidneys of infected guinea-pigs, the infective agent has been conveyed from animal to animal without loss of virulence through successive series (now numbering eighteen); and pure cultures of the organism are obtainable during the course of the infection from any animal of these series.

When cultures of the organism, derived either from the inoculated animals or directly from the blood of a yellow fever patient, were inoculated into guinea-pigs, monkeys (marmosets) and puppies, symptoms and lesions were induced which were similar to those outlined as occurring from a successful inoculation of guinea-pigs directly with blood from yellow fever patients. The organism recovered in pure culture from these inoculated animals has retained its original characteristics.

Many of the guinea-pigs that did not succumb to the inoculation with the blood from yellow fever patients showed definite febrile reaction, some with a trace of jaundice, for several days, but soon returned to normal. Most of these guinea-pigs later proved resistant to infection with virulent organ emulsions or with cultures of the organism; while control animals (normal guinea-pigs or those inoculated previously with blood of patients suffering from other diseases than yellow fever) died, with characteristic symptoms and lesions.

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* From the Laboratories of The Rockefeller Institute for Medical Research.

[1] Inada, Ido, Hoki, Kaneko and Ito: J. Exper. Med. **23**: 377, 1916. Noguchi: Ibid. **27**: 575, 1918.

A positive Pfeiffer phenomenon was obtained in the majority of instances with serum derived from convalescents from yellow fever in Guayaquil when tested with the organism (*Leptospira*) isolated from the yellow fever cases or from infected animals. This was also true of the serum of animals that survived experimental infection.

Characteristic symptoms and lesions were induced in susceptible animals by inoculation with the filtrates obtained by passage through Berkefeld filters V and N of the blood of experimentally infected animals, and the emulsions of the liver and kidney of these animals and of the cultures of the organism. *Leptospira* was demonstrated in the blood or visceral organs of the animals thus inoculated.

The filtrability of the infective agent of yellow fever has been observed by earlier investigators.[2]

RELATION OF INFLUENZA BACILLUS TO THE RECENT EPIDEMIC OF INFLUENZA *

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Pfeiffer[1] found influenza bacilli in all fresh uncomplicated cases of influenza in almost pure culture. His investigation was carried out for the most part on persons seeking hospital care for the more severe attacks of bronchitis and bronchopneumonia. Influenza bacilli were found only in influenza patients with and convalescent from influenza, a fact of great importance in Pfeiffer's opinion in establishing the specific nature of the organism. In three cases of bronchopneumonia complicating diphtheria, organisms closely resembling influenza bacilli were found but somewhat larger and with an outspoken tendency to the formation of longer thread forms. Such organisms he called pseudo-influenza bacilli.

Subsequent workers have failed to confirm the presence of a group of pseudo-influenza bacilli. Such differences as Pfeiffer described are to be regarded as variations in morphology in different generations and on different culture mediums.

In the period immediately following the great pandemic of 1889-1890, and subsequent to Pfeiffer's work, influenza bacilli were found by different workers in a considerable proportion of cases in local outbreaks of influenza, but only rarely in such constancy as he had described. In the widespread epidemic in the United States in 1907-1908, Lord[2] found influenza bacilli in practically pure culture in only three of twenty cases. Among twenty-three cases, Davis,[3] from Chicago, found the organism in only four.

Between August, 1902, and January, 1904, Lord[4] investigated 186 sputums from patients with acute and chronic infection of the respiratory tract, exclusive of tuberculosis. As shown in Table 1, organisms having the morphology and staining reaction of influenza bacilli, mixed with other bacteria, were found in smears in 110 (59 per cent.). In fifty-six cases (30 per cent.) the organisms were shown by culture to conform in all respects to Pfeiffer's bacillus. In forty-seven cases (25 per cent.) they were in overwhelming numbers. The cases were quite evenly distributed over the eighteen months during which the investigation was conducted, and no epidemic of acute respiratory infection prevailed during this period. Patients with chronic respiratory infection were found to harbor the influenza bacillus for years in the sputum. Many such cases seemed to have begun insidiously without an acute attack at the onset. The acute cases in which influenza bacilli existed as a practically pure infection in the interepidemic period presented no clinical or pathologic difference from those with other organisms and in which no influenza bacilli could be found. The symptoms of onset, the course and termination were practically the same in those with and those without influenza bacilli.

TABLE 1.—INCIDENCE OF INFLUENZA BACILLI IN RESPIRATORY INFECTIONS DURING INTEREPIDEMIC PERIOD, 1902-1904

		Influenza bacilli					
		Mixed with Other Organisms in Smears		In Cultures		In Overwhelming Numbers	
No. of Cases	Source of Material	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
186	Sputum	110	59	56	30	47	25

Normal individuals are known to harbor influenza bacilli. Rosenthal[5] found them in the larynx and trachea in about one of six normal persons or those with nonrespiratory disease. Davis[3] found them in small numbers in swabs from the throat in two (10 per cent.) of twenty normal persons. Holt[6] reports the presence of influenza bacilli in 49 (19 per cent.) of 254 persons with nonrespiratory disturbance.

TABLE 2.—INCIDENCE OF INFLUENZA BACILLI IN NORMAL PERSONS DURING EPIDEMIC PERIOD

		Influenza bacilli					
		Mixed with Other Organisms in Smears		In Cultures		In Overwhelming Numbers in Culture	
No. of Cases	Source of Material	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
34	Swabs from upper pharynx	14*	41	26†	76	10	29

* *The small number of positive smears may be ascribed to the difficulty of identifying small numbers of influenza bacilli.*

† The colonies of influenza bacilli were tested for growth on plain agar in fourteen. No growth was obtained.

It was considered desirable to determine the incidence of influenza bacilli in normal individuals during the epidemic period. For this purpose cultures were made from swabs brushed over the upper part of the

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2. Carroll: Senate Document 822, *61st Cong.*, 3d sess., Washington, 1911, p. 156. Marchoux, Salimbeni and Simond: Ann. de l'Inst. Pasteur **17**: 677, 1903.

* The investigation was made at the Massachusetts General Hospital under the supervision of Dr. Lord. *Most of the work was done by* Drs. Scott and Nye, *assisted by the following* Harvard Medical student volunteers: Joseph Garland, Alfred M. Goodale, Eliot *Hubbard*, Jr., Joe V. Meigs and Eugene C. Peck.

1. Pfeiffer: Ztschr. f. Hyg. **13**: 357, 1893.

2. Lord: J. M. Res. **19**, n. s. **14**: *295-299, 1908.*

3. Davis, D. J.: Influenza and Influenzal *Pneumonia*, Arch. Int. Med. **2**: *124* (Sept.) *1908.*

4. Lord: Boston M. & S. J., May 11 and 18, 1905.

5. Rosenthal: Compt. rend Soc. *de biol.* **52**: *266, 1900;* **55**: 1500, 1903.

6. Holt: Tr. Assn. Am. Phys. **25**: *223, 1910.*

pharyngeal wall of thirty-four young men, members of the Harvard Students' Army Training Corps at Cambridge, none of whom gave a history of any illness during the preceding three months. In this training corps the incidence of influenza was 9.3 per cent., as shown by Minot and Loeb.[7] This proportion was very low compared to that in other groups in this community. As shown in Table 2, organisms resembling influenza bacilli in morphology and staining reaction were demonstrated in fourteen (41 per cent.) of the thirty-four cases. Influenza bacilli were found in culture in twenty-six (76 per cent.). They were in overwhelming numbers in ten cases (29 per cent.).

Through the kindness of Dr. J. H. Wright, complement fixation tests were made on the blood in twenty-seven of the Students' Army Training Corps cases, both with a monovalent and with a polyvalent influenza bacillus antigen obtained from influenza cases during the epidemic. No difference was noted in the result with the monovalent and the polyvalent antigen. In seventeen cases, there was a correspondence in the positive swab and the positive complement fixation test. In four cases, both were negative. In four cases, the throat swab was positive and the complement fixation test negative. In two cases, the complement fixation was positive and the throat swab negative. Though no definite conclusions can be drawn, the findings are suggestive of a response in the blood to the presence of influenza bacilli in the throat as shown by the complement fixation test.

It has been shown that influenza bacilli are frequently present in the material from the respiratory tract of patients with tuberculosis, measles, scarlet fever, diphtheria and varicella, as shown in Table 3.

TABLE 3.—INCIDENCE OF INFLUENZA BACILLI IN VARIOUS INFECTIONS

Author	Reference	Source of Material	No. of Cases	Influenza Bacilli No.	Influenza Bacilli Per Cent.
Tuberculosis:					
Wollstein......	J. Exper. Med. 8, No. 6, 1906	Infant's bronchial or nasal secretion	24	8	33
Measles:					
Jehle..........	Ztschr. f. Heilk. 22, n. s. 2, Int. Med., 1901	Contents of bronchi, postmortem	23	18	78
Susswein.......	Wien. klin. Wchnschr., 1901, No. 47	Nose or bronchial secretion, postmortem	21	10	47
Liebscher......	Prag. med. Wchnschr. 28: 85, 1903	Nasal secretion	57	11	19
Wollstein......	J. Exper. Med. 8, No. 6, 1906	Infant's bronchial or nasal secretion	27	9	33
Davis..........	Arch. Int. Med. 2:124, 1908	Throat or sputum	23	13	56
Scarlet fever:					
Jehle..........	Ztschr. f. Heilk. 22, n. s. 2, Int. Med., 1901	Contents of bronchi, postmortem	48	19	39
Diphtheria:					
Jehle..........	Ztschr. f. Heilk. 22, n. s. 2, Int. Med., 1901	Contents of bronchi, postmortem	15	9	60
Varicella:					
Jehle..........	Ztschr. f. Heilk. 22, n. s. 2, Int. Med., 1901	Contents of bronchi, postmortem	9	9	100

These organisms may be present in from 19 to 100 per cent. of cases. In the study of postmeasles bronchopneumonia due to *Streptococcus hemolyticus,* Cole and MacCallum[8] found influenza bacilli in thirteen (76 per cent.) of seventeen cases.

Investigation of the recent epidemic was begun at the height of the outbreak and lasted from September 28 to October 24. Only patients in hospital with the more severe types of infection were studied. It was difficult to distinguish between bronchitis and bronchopneumonia in certain cases. Of thirty-eight cases, eight were classed as influenzal bronchitis or questionable bronchopneumonia and thirty as influenzal bronchopneumonia, thus duplicating the character of the material on which Pfeiffer made his investigation.

A typical sample of mucopurulent or mucopurulent and bloody expectoration was obtained from each case. Carefully selected particles of this fresh material were smeared, stained and examined. Organisms resembling influenza bacilli in morphology and staining reaction were thus found mixed with other bacteria in thirty-two (84 per cent.) of thirty-eight cases, as shown in Table 4.

TABLE 4.—INCIDENCE OF INFLUENZA BACILLI IN HOSPITAL PATIENTS DURING 1918 EPIDEMIC

		Influenza bacilli					
		Mixed with Other Organisms in Smears		In Cultures*		In Overwhelming Numbers in Culture	
No. of Cases	Source of Material	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
38	Sputum	32	84	30	78	14	36
15	Lung tap, postmortem, 9 cases	..	..	6	66	1	11
	Chest tap, antemortem, 6 cases	..	..	4	66	2	33
4	Lung scraping, postmortem	..	..	1	25		

* The colonies of influenza bacilli were tested for growth on plain agar in twenty-seven cases. No growth was obtained.

Cultures on blood agar were made of washed particles of sputum, and the prevalence of influenza bacilli was noted in thirty-eight cases. Colonies of influenza bacilli with those of other bacteria were found in thirty (78 per cent.) of the cultures. In fourteen cases (36 per cent.), influenza bacilli were present in overwhelming numbers on comparison with other organisms. Varying numbers of organisms resembling *Micrococcus catarrhalis,* the pneumococci, pyogenic cocci, hemolyzing and nonhemolyzing streptococci, etc., were found mixed with the colonies of influenza bacilli.

Lung tap in the involved region immediately after death was made in nine cases. Influenza bacilli were found in culture from this material in six (66 per cent). They were present in overwhelming numbers in one (11 per cent.). In this case they were in pure culture. In all the other cases they were mixed with other organisms. Serofibrinous or purulent fluid obtained from the chest of patients with influenzal bronchopneumonia was examined in six cases. Influenza bacilli with other organisms were found in culture in four (66 per cent.), and in overwhelming numbers in two (33 per cent.). *Postmortem* scrapings from the involved part of the lung showed influenza bacilli with other organisms in one (25 per cent.) of four cases.

The finding of influenza bacilli in the wards cannot be ascribed to cross infection, as influenza bacilli were present in the sputum of eight (88 per cent.) of nine cases examined within twenty-four hours of entrance, a proportion higher than the general incidence (78 per cent.) of influenza bacilli in the series of cases in which sputum examinations were made.

Concerning the pathogenic power of influenza bacilli, the evidence is insufficient to reach a conclusion; but, in spite of negative animal experiments, their presence in enormous numbers to the practical exclusion of other organisms in certain cases in the sputum during life [illegible] the lung tissue after death suggests that they are important contributory or principal factors in causing pathologic changes in man. Their occasional presence as the sole apparent cause of meningitis and suppurative lesions in various parts of the body is still further suggestive of their pathogenic power.

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[7] Minot, G. R., and Loeb, R. F.: Boston M. & S. J. **179**:665, 1918.

[8] Cole, R., and MacCallum, W. G.: Pneumonia at a Base Hospital, J. A. M. A. **70**:1146 (April 20) 1918.

The most interesting question concerns the specificity of influenza bacilli in relation to *influenza.* Pfeiffer's most convincing argument, in the absence of positive animal experiments, was their presence only in patients with and convalescent from influenza. If the organism were the cause of epidemic and pandemic influenza, it must, however, contrary to Pfeiffer's contention, prevail during interepidemic periods. Its biologic peculiarities suggest that it cannot exist for long under any ordinary conditions apart from the human host and that it must be maintained in chronic carriers or by repeated transfer from person to person. An occurrence in 59 per cent. by microscopic examination, 30 per cent. by culture, and 25 per cent. in overwhelming numbers, in acute and chronic nontuberculous respiratory infections during interepidemic periods would serve to bridge the gap between and keep the organism alive for recurring outbreaks. During the interepidemic period, however, those cases which show influenza bacilli as a practically pure infection present no clinical or pathologic difference from respiratory infection in which other organisms predominate and in which influenza bacilli cannot be found.

The influenza bacillus is part of the flora of the normal respiratory tract, investigations previous to the recent epidemic having shown it to be present in from 10 to 19 per cent. In our series of thirty-four normal individuals, examined during the epidemic period, influenza bacilli were found in 76 per cent. by culture and in 29 per cent. in overwhelming numbers. Means of identifying influenza bacilli are limited to the morphology, staining reaction and cultural peculiarities of the organism, and it cannot be stated whether or not the bacilli harbored by normal persons are of the same type as those found in the presence of a respiratory disturbance; but when judged by these criteria they appear to be the same. The frequency with which they are present in normal individuals may be regarded as determining their incidence in diseased conditions.

The influenza bacillus is a frequent finding in the secretions from the respiratory tract under such a variety of conditions as pulmonary tuberculosis (33 per cent.), measles (from 19 to 78 per cent.), scarlet fever (39 per cent.), diphtheria (60 per cent.) and varicella (100 per cent.). The organism certainly cannot be regarded as of etiologic importance in these diseases, but may be of significance as a secondary invader.

The character and distribution of the recent epidemic of influenza indicate that it is to be regarded as the same disease that has prevailed in epidemic form at intervals during the past four centuries and last occurred as a great pandemic in 1889-1890. While much doubt has been expressed concerning the relation of Pfeiffer's bacillus to epidemic influenza, no definite conclusion could be reached until an outbreak like that through which we have just passed afforded the necessary opportunity for investigation. Our material, like Pfeiffer's, comprised the more severe cases of bronchitis and bronchopneumonia in hospital. We have been unable to confirm his constant finding of the organism in almost pure culture. It has been demonstrated in our epidemic series in 84 per cent. by microscopic examination, in 78 per cent. by culture, and in 36 per cent. in overwhelming numbers.

Comparison with the findings by similar methods in an interepidemic period of 59 per cent. by microscopic examination, 30 per cent. by culture and 25 per cent. in overwhelming numbers, indicates that there is no considerable rise at least in the most important group, namely, that in which the organisms were present in overwhelming numbers. It is a common invader of the normal respiratory tract and may be found in a considerable proportion of cases with pulmonary tuberculosis and the contagious diseases of childhood. There seems to be no justification for the belief that the epidemic was due to the influenza bacillus, which is probably a secondary invader and bears about the same relation to the influenza cases as to respiratory infections of a different sort.

THE PRODUCTION OF MENINGITIS BY RELEASE OF CEREBROSPINAL FLUID

DURING AN EXPERIMENTAL SEPTICEMIA: PRELIMINARY NOTE *

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In the course of the experimental study of meningitis, it was found that a certain strain of *B. mucosus-capsulatus* possessed particular virulence within the meninges of laboratory animals. A typical acute and fatal leptomeningitis was produced by the direct subarachnoid injection of very small numbers of these organisms; the affected animals showed characteristic signs of meningeal infection, dying in from eight hours to five days. The number of these bacilli necessary for the production of such an infection was far smaller than with any other strain or class of organisms tested. The particular strain of *B. mucosus-capsulatus* used in these observations is, according to the classification of Perkins, *B. lactis-aerogenes,* being differentiated from others of the group by the sugar reactions. It is an encapsulated, nonspore-forming, gram-negative, nonmotile bacillus, with a tendency to occur in varying lengths of chains. This organism was isolated from the lungs and blood of a patient dying of bronchopneumonia.

Later experiments leading to another end were undertaken: These concerned the intravenous injection of this organism in doses of from 0.5 to 1 c.c. of a twenty-four hour broth culture. None of these cats developed meningitis, but remained normal throughout the period of observation. In one case, shortly after such experimental injection into the blood stream, cerebrospinal fluid was removed by puncture. The next day the animal showed signs of meningeal irritation, and a second puncture with withdrawal of cerebrospinal fluid was done. The fluid was definitely turbid, contained 5,800 white blood cells, and yielded a positive culture of *B. mucosus-capsulatus*. In the smear from this fluid many bacilli were present. The animal died in twenty-eight hours, and at necropsy a typical exudative leptomeningitis was found.

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* From the Army Neurosurgical Laboratory, Johns Hopkins Medical School.

MENINGITIS BY B. MUCOSUS-CAPSULATUS INTRAVENOUSLY AND WITHDRAWAL OF SPINAL FLUID

Observations on cats were immediately devised to test out the possible relationship of this withdrawal of cerebrospinal fluid during an artificial septicemia to the later production of a meningitis. The series were so arranged that the control animals were given double the intravenous dose of *B. mucosus-capsulatus* (usually 0.5 c.c. of a twenty-four hour meat infusion broth culture). These control cats remained normal and showed no signs of meningeal infection, and were usually killed at the end of a month for histologic control. The other cats in this series were given the unit dose of organisms intravenously (usually 0.25 c.c. of the same culture), and two minutes afterward, cerebrospinal fluid was withdrawn. In the routine experiment, from 1 to 2 c.c. of fluid was permitted to escape, and the animal then allowed to recover from the anesthetic. As contrasted the next day with the control cat, which, though receiving double the intravenous dose, was normal and active, the punctured cat would exhibit signs of meningeal infection. Customarily within twenty-four hours, the typical signs of such meningeal involvement would be present; the animal would be somewhat hypersensitive, ill and cautious, and would move only on urgent necessity. On retraction of the head, a more or less profound extensor spasm with all four legs outstretched in marked rigidity would be caused. The tendency toward convulsions would become more outspoken as time elapsed, and spontaneous seizures would be noted. During such a spasm death might occur, or the animal might finally go into a coma and die without further signs of meningeal irritation. Pathologically, an acute exudative leptomeningitis would be found.

Subsequently, the procedure outlined above has been repeated in scores of experiments; the production of meningitis by intravenous inoculation followed by release of cerebrospinal fluid has been so certain and so regular that it has become our chief method for the experimental production of the infection. The work has been controlled in many ways, in addition to the routine method of giving one animal in the series an intravenous injection of double amount but without puncture; in a more complete report of this work the cultural controls will be included.

The release of cerebrospinal fluid may be brought about by either lumbar or occipito-atlantoid puncture. The end-result is identical, and approximately the same amount of fluid may be withdrawn by either method. No appreciable difference in the production of meningitis by intravenous inoculation, followed by lumbar puncture, and that by occipito-atlantoid puncture has been noted. Release of fluid by both procedures, with proper dosage of the organism within the blood stream, results invariably in the infection of the meninges. Puncture through the occipito-atlantoid ligament, as practiced by Dixon and Halliburton, is an ideal method for the removal of cerebrospinal fluid in the laboratory mammals.

That this phenomenon of an acute meningitis following intravenous inoculation with release of cerebrospinal fluid was not peculiar to cats was demonstrated by a series of experiments on rabbits, guinea-pigs, white rats and monkeys. In each of these species, the control was given the same or double the intravenous dose as the animal from which the cerebrospinal fluid was removed at the height of the artificial septicemia. In every case the control remained well and normal until killed, while the animals from which spinal fluid was removed promptly developed a typical meningitis with death in ninety-six hours or less. In the two monkeys at our disposal, the same procedure was carried out: the control (receiving only the intravenous injection) remained normal for seven months, dying finally of pulmonary tuberculosis, while the monkey receiving the intravenous injection followed by the withdrawal of cerebrospinal fluid died in fifty-four hours with typical signs of meningitis. The two monkeys were punctured forty-eight hours after the initial injection; in the control, the cerebrospinal fluid contained no white cells, and the culture was negative, while the other had 14,000 white blood cells and yielded a positive culture.

The time relations between the withdrawal of cerebrospinal fluid and the intravenous injection of organisms are of importance. In no case has a meningitis developed when the cerebrospinal fluid was released thirty or more minutes before the intravenous inoculations. If the puncture is done, however, only a few minutes before the inoculation into the blood stream, infection of the meninges occurs as in the other observations in which routine withdrawal of fluid is accomplished at the height of the artificial septicemia. Somewhat analogous are the findings in the time relationship between initial introduction of organisms intravenously and the subsequent withdrawal of fluid.

During the height of a suitable artificial septicemia, the release of fluid invariably causes a meningitis. In one series of experiments, the punctures were delayed for varying periods after the intravenous injection. Animals from which cerebrospinal fluid was withdrawn at least three hours after the intravenous injection developed meningitis. But also animals receiving somewhat larger intravenous doses could not be punctured five hours afterward without developing infection of the meninges. Hence a striking time relation between the degree of the artificial septicemia and the withdrawal of cerebrospinal fluid seems established. It must be assumed that following the intravenous injections of *B. mucosus-capsulatus* the number of bacteria in the circulating blood is constantly diminishing so that in practically all cases of simple intravenous injection the blood is sterile in twenty-four hours. Consequently, delay in removal of cerebrospinal fluid is comparable to administration of a smaller intravenous dose of organisms. Apparently the number of organisms circulating within the blood stream at the time of puncture is one of the crucial factors in determining the infection of the meninges.

Other observations were made to determine how soon this infection of the meninges occurs after the release of cerebrospinal fluid during the height of the septicemia with *B. mucosus-capsulatus*. In these typical experiments the animals were killed one hour, two hours, four hours and six hours after the experimental injection and puncture. The membranes of the central nervous system were then examined in fresh by means of smears taken from the subarachnoid space, and the findings later controlled by histologic sections. In the one hour case after repeated search one or two large bacilli, morphologically identical with *B. mucosus-capsulatus*, were found in the cerebral leptomeninges but not elsewhere within the meninges. The two hour specimen yielded bacteria only in the cranial portion of the pia-arachnoid, but in considerable numbers. Practically no cellular exudation was present.

Many polymorphonuclears and mononuclears were present in the four and six hour animals; the infection at first was largely within the cerebral meninges, but apparently to a lesser degree the spinal portion of the subarachnoid space was involved. These findings indicate that the infection of the meninges must occur almost immediately after the release of cerebrospinal fluid during such an artificial septicemia.

Pathologically, the meningitis produced by this means is comparable to infection of the leptomeninges in man. In these acute experimental infections there occurs a more or less widespread distribution of purulent matter throughout the subarachnoid space, obliterating all characteristic markings and obscuring contours. With the discoloration due to pus and hemorrhage, there is associated a fairly constant swelling of the nervous system itself, rendering tense the dura of both brain and spinal cord. In a great majority of cases (particularly those under forty-eight hours' duration) the gross distribution of the exudate is almost entirely cerebral; but in a small percentage of the early cases, the exudate may be wholly confined to the spinal meninges. In the more prolonged infections, the involvement of the subarachnoid space is customarily universal. Microscopically, the exudate consists of polymorphonuclear leukocytes, large mononuclear cells, a few phagocytes, and the infecting organisms. The perivascular spaces of the cerebral cortex are early infected; the exudate here is of the same character as in the subarachnoid space. In the very virulent infections, the substance of the brain and cord may be involved as in similar processes in man.

It is of importance to determine whether the meningitis produced by intravenous inoculation and release of cerebrospinal fluid is the result of infection due to a possible leakage of blood along the track of the needle into the subarachnoid space. The evidence at the present time indicates most strongly that the determining factor in the infection is probably the pressure of the spinal fluid with associated vascular alterations. This conclusion is based in part on observations such as these:

(*a*) In the majority of cases, the exudate is largely cerebral and does not represent the characteristic distribution of a spread from a local point of infection.

(*b*) Cultures of the cerebrospinal fluid removed during the artificial septicemia and when free from blood contamination have proved negative.

(*c*) The withdrawal and replacement of the fluid, just before intravenous inoculation, have not resulted in the production of a meningitis though it is impossible to prevent leakage of the fluid outward along the path of the needle.

(*d*) Similar withdrawal of fluid during the septicemia, but replacement after two minutes, has not prevented the development of a meningitis.

In addition, other factors, to be reported later, argue strongly for the view that the infection of the meninges under such circumstances is the result of pressure alterations within the central nervous system.

PRODUCTION OF MENINGITIS SIMILARLY WITH OTHER ORGANISMS

With such results following the intravenous injection of *B. mucosus-capsulatus* with release of cerebrospinal fluid, experiments were undertaken to ascertain if the same procedure, but with other organisms, would produce meningitis. The difficulty has been that with the ordinary cultures in a laboratory, the intravenous toxicity is high compared to the intraspinal. However, it has been possible to repeat these experiments and confirm the finding on the cat with two other organisms—*B. pyocyaneus* and *B. paratyphosus* B. On rabbits a similar result has been obtained with a strain of streptococci procured from an army camp. Three control rabbits in one of these series were given intravenous doses of this organism, 1 c.c. each of a twenty-four hour broth culture, diluted 1 : 1,000, 1 : 2,000 and 1 : 5,000, respectively. Similar doses were given to three other rabbits of the same size and weight, but these were in addition each subjected to the release of about 1 c.c. of clear cerebrospinal fluid by occipito-atlantoid punctures. Two of the latter animals were dead on the next morning; at necropsy an acute meningitis was found. The third animal showed within twenty-four hours a more chronic form of meningitis, dying on the seventeenth day; typical infection of that duration was found postmortem. The three control animals remained normal until killed on the twenty-fifth day; the central nervous systems of these animals showed no abnormalities.

VIRULENCE AND NUMBER OF ORGANISMS

The biologic significance of the release of cerebrospinal fluid during an artificial septicemia seems established by the production, in this laboratory, of a typical meningitis with four different organisms. The conditions for the successful production of such an experimental meningitis concern two factors, both apparently of determining importance. In the first place, it seems established that the organism used must possess relatively great virulence within the meninges and be capable of multiplication there even when in small numbers. The strain of *B. mucosus-capsulatus* has best fulfilled this requirement when introduced into the subarachnoid space of the common laboratory mammals; its virulence in these animals is probably comparable to that of organisms causing meningitis in man. The other important condition deals with the number of organisms circulating in the blood stream at the time of the release of the spinal fluid; if this is not great enough, no infection will take place.

It must not be assumed from the statements made that a meningitis may not be produced by *B. mucosus-capsulatus* after simple intravenous injection. Such a meningitis has been caused by the introduction within the blood stream of massive doses of the organism. The amount necessary to produce such a meningitis is at least four to six times the customary intravenous injection; such animals are killed usually by the septicemia and not by the meningitis. Many of these animals died from the overwhelming intravenous injection without development, as shown by later necropsy, of any meningeal infection at all. With massive doses, however, all parts of the body may be infected: the meningitis is merely a part of the general infection. This bears only slight relation to the phenomenon of the localization of an intravenous infection within the meninges by release of cerebrospinal fluid.

CONCLUSION

It seems established, then, that the intravenous injection of a sufficient number of organisms, virulent within the meninges, will produce a typical leptomeningitis, if the cerebrospinal fluid is withdrawn during the artificial septicemia. The clinical significance of this finding seems great, and it becomes necessary to ascertain if the same relation between the withdrawal of cerebrospinal fluid during a septicemia and the subsequent development of a meningitis will hold in man. Data relating to this point are being assembled.

A STAIN FOR INFLUENZA BACILLI IN TISSUES

A COMBINATION OF GOODPASTURE'S AND WEIGERT'S STAINS *

W. G. MacCALLUM, M.D.
BALTIMORE

Since the bacillus of Pfeiffer commonly occurs in association with other organisms in the lungs and other tissues, it is difficult to make the organisms appear distinctly in stained sections. There are many methods by which they or any other gram-negative organisms can be stained in the tissues (Nicolle, Giemsa, etc.), but these require very careful differentiation and then leave all bacteria, whether gram-negative or gram-positive, stained alike. One may, of course, stain all bacteria in one section and only the gram-positive organisms in another, and subtract the result in one from that in the other, so as to gain an idea of the number and distribution of gram-negative organisms; but it is very desirable to be able to bring out in the same section the gram-negative bacteria in one color and the gram-positive in another.

The stain devised by Dr. Goodpasture furnishes the requisite red stain for all bacteria. This used alone gives results comparable with those of Giemsa's or Nicolle's method but is suitable for combination with Weigert's stain because of its contrasting color.

Dr. Goodpasture's paper giving his method will not be published until April, but he most kindly allows me to use his formula in describing the combination which includes his stain, "in view" (as he writes) "of the present need of such a method."

PROCEDURE

Fixation should be in Zenker formaldehyd solution, and very thin paraffin sections should be used.

1. Stain for from ten minutes to one-half hour or more in Goodpasture's stain, which is:

	Gm. or C.c.
30 per cent. alcohol	100
Basic fuchsin	0.59
Anilin	1.0
Phenol crystals	1.0

2. Wash in water.
3. Differentiate in 40 per cent. formaldehyd solution. This requires only a few seconds. The bright red color washes away and gives place to a clear rose.
4. Wash.
5. Counterstain in saturated aqueous picric acid. The section remains until it assumes a *purplish yellow*, about three to five minutes or less.
6. Wash in water.
7. Differentiate in 95 per cent. alcohol. The red reappears and some of it is washed out. Some of the yellow of the picric acid is also washed out.
8. Wash in water.
9. Stain in Stirling's gentian violet five minutes or more.
10. Wash in water.
11. Gram's iodin solution.
12. Blot dry without washing.
13. Anilin and xylene (equal parts) until no more color comes away.
14. Two changes of xylene.
15. Balsam.

Gram-negative organisms stain red, gram-positive blue. The tissues stain brilliantly in shades of red and purple. Fibrin is, of course, sharply stained, and the granules of mast cells are prominent as red or purplish coccus-like bodies.

The method should be useful in the study of infections of exposed surfaces, such as the intestinal mucosa and the urinary bladder, with gram-negative organisms. The lesions of dysentery, typhoid fever and many other similar conditions might be studied with advantage by this method.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

CHLORINATED EUCALYPTOL-SQUIBB.—Eucalyptol, chlorinated at ordinary (room) temperature.

Actions and Uses.—Chlorinated eucalyptol-Squibb is used as a solvent for dichloramine-T.

Dosage.—Solution of dichloramine-T in chlorinated eucalyptol-Squibb should preferably be made as required and without the use of heat. If kept in the dark, stock solutions may be used for thirty days.

Prepared by E. R. Squibb & Sons, New York. No. U. S. patent or trademark.

Eucalyptol is treated with potassium chlorate and strong hydrochloric acid. After standing twelve hours at room temperature, the chlorinated eucalyptol is washed, first with water and then with sodium carbonate solution. Dry sodium carbonate is then added to the chlorinated eucalyptol and this allowed to stand for twenty-four hours. The chlorinated eucalyptol is filtered and dried by addition of calcium chloride (Jour. A. M. A., July 7, 1917).

Chlorinated eucalyptol has the color and odor of eucalyptol.

ARSPHENAMINE (See New and Nonofficial Remedies, 1918, p. 44).

Arsaminol.—A brand of arsphenamine.

Manufactured by the Takamine Laboratory Inc., New York, under U. S. patent Nos. 986,148 (*March 7, 1911*; expires 1928), 1,081,897 (Dec. 16, 1913; expires 1930), 1,081,592 (Dec. 16, 1913; expires 1930), and 1,116,398 (Nov. 10, 1914; expires 1931) by license of the U. S. Federal Trade Commission.

Arsaminol 0.1 Gm. Tubes.—Each hermetically sealed tube contains arsaminol 0.1 Gm.

Arsaminol 0.2 Gm. Tubes.—Each hermetically sealed tube contains arsaminol 0.2 Gm.

Arsaminol 0.3 Gm. Tubes.—Each hermetically sealed tube contains arsaminol 0.3 Gm.

Arsaminol 0.4 Gm. Tubes.—Each hermetically sealed tube contains arsaminol 0.4 Gm.

Arsaminol 0.5 Gm. Tubes.—Each hermetically sealed tube contains arsaminol 0.5 Gm.

Arsaminol 0.6 Gm. Tubes.—Each hermetically sealed tube contains arsaminol 0.6 Gm.

CHLORAMINE-T.—Sodium Paratoluenesulphochloramide. —$CH_3.C_6H_4.SO_2NaNCl+3H_2O$, 1:4.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 156.

Chloramine-T, *Monsanto*.—A brand of chloramine-T.

Manufactured by the Monsanto Chemical Works, St. Louis. No U. S. patent or trademark.

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* From the Johns Hopkins University.

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SATURDAY, JANUARY 18, 1919

THE VENOPRESSOR MECHANISM

In order to enable the heart to distribute a suitable modicum of blood to the tissues and organs, a corresponding quantity must be delivered to the cardiac pump for circulation. However obvious this may be to the critical student of hemodynamics, it has not received the recognition that such a fundamental fact requires from the casual observer of circulatory phenomena. The important factors in the diastolic filling of the heart that limit the volume of blood circulated in any unit of time are the venous pressure and the volume of the venous return of blood. The needs of different parts of the body for blood vary enormously at different times. Rest and vigorous muscular activity represent, for example, extremes of condition that determine widely unlike demands for blood distribution by the heart. Correspondingly enormous variations in the volume of venous blood return required and provided occur. Accordingly there must be some mechanism, to quote a recent writer,[1] controlling the supply of blood from the veins to the heart and regulating the variations needed during rest and exercise. This mechanism must adjust the venous pressure to dilate the right heart during diastole, neither over nor underfilling the ventricle.

How is the advantageous control of this admittedly essential venopressor mechanism brought about? A few years ago when the peripheral modification of blood flow was believed to be associated solely with changes in the caliber of the arterial system, an active as contrasted with a merely passive change in size of the smaller efferent vessels, the venules, was scarcely taken into account as a vasomotor possibility. Vasomotor control was almost synonymous with regulation of the arterial side of the circulatory cycle. Today we must admit that the capillaries and venules also may participate more actively in a change in caliber that will modify the possibility of the blood flow through them.

Recent studies are beginning to indicate the probability—if, indeed, they do not clearly demonstrate—that both nervous and chemical factors may contribute to vascular relaxation and change in the capillary and venous regions. Hooker[2] has recently demonstrated how a rise of venous pressure may be obtained quite independently of arterial factors, through responses of the venopressor mechanism, particularly by directing nervous influences on it. Perhaps even more significant and novel are the contributions of Henderson and Harvey[1] from the physiologic laboratory of the Yale School of Medicine, which suggest that the venopressor mechanism consists essentially in the chemical influence, either directly or through a local nervous mechanism, on the caliber of the capillaries and especially of the small efferent vessels, the venules, exerted by the greater or less venosity of the blood in and flowing from the organs, especially the skeletal muscles. The greater the activity of the muscles, the more venous this blood. The efferent vessels are thus relaxed and the outflow from the capillaries into the venous system made easier. The volume of the venous return to the heart is increased, the venous pressure is raised and (within certain limits) the efficiency of the heart is increased. Thus the two extremes of high venous pressure on the one hand and abnormally low venous pressure on the other are induced, respectively, the former by muscular exertion with great carbon dioxid production and the latter by acapnia and related conditions.

The demonstration of such a venopressor mechanism distinct from the traditional vasomotor nervous regulation—a mechanism consisting of a peripheral chemical control, largely through variations in the carbon dioxid content of the venous blood, over the venous pressure and the volume of the venous return—is founded on recently reported experiments.[1] Thus Henderson and Harvey found that procedures which strongly influence vasomotor innervation cause on the whole decidedly greater alterations of arterial than of venous pressure, and the alterations of venous pressure are often only momentary and therefore largely indirect and secondary to redistribution of blood. On the other hand, admittedly chemical changes that have little or no effect on arterial pressure, other than an increased amplitude of pulse, cause an enormous rise of venous pressure. Thus another instance is added to the growing evidences for chemical regulation of vital functions—in this case factors in the circulation "acting as a powerful accessory to the vasomotor nervous system in accelerating the venous return, and regulated by chemical rather than by nervous influences." If shock involves a fall of arterial pressure due to decreased venous return to the heart, the possible importance of the phenomena just discussed must become obvious. But this is a province of perennial debate that we hesitate to enter.

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[1] Henderson, Yandell, and Harvey, S. C.: Acapnia and Shock, VIII, The Venopressor Mechanism, Am. J. Physiol. **46**: 533, 1918.

[2] Hooker, D. R.: The Venopressor Mechanism, Am. J. Physiol. **46**: 591, 1918.

PALEOPATHOLOGIC STUDIES

Paleopathology, as we have pointed out,[1] is a new word for a very old subject, which is only now beginning to attract the attention it deserves. All physicians interested in the scientific side of medicine, especially those who have professional and educational interests at heart, should be familiar with its recent progress. The term was originally proposed, we believe, by Ruffer in 1914, when, in the course of researches on ancient Egyptian mummies, he realized that the study of pathologic changes occurring in past ages ought to have a definite place of its own in medical science. Mummies have revealed the fact that pathology in its present form is as old as human history, and that bones particularly, but also arteries and other tissues, when preserved as the mummies have been, demonstrate that humanity has not changed in its pathologic reactions for fifty centuries at least. It is interesting to find arteriosclerosis affecting the Egyptians just as it does men of our time. It is illuminating to realize that in spite of the fact that the ancient Egyptians led lives of ease, had no tobacco, and did not overindulge in meat eating, their arteries degenerated practically in the same way as our own.

Keith,[2] in discussing the trephined skulls from the Neolithic graves in France, states that in one Neolithic sepulchral chamber accidentally discovered in 1908 on the side of a hill at Vendrest, about 60 miles east of Paris, remains of more than 120 individuals representing both sexes and all ages were found, and no less than eighty skulls had been trephined during life. Such skulls have been found elsewhere in France and also in England, some of them with more than one trephine opening. Manifestly, the operation was rather frequently done. The operations were performed not less than 4,000, and some of them perhaps 6,000 years ago, with stone instruments; for the use of metals had not as yet been learned. As the margins of the openings are healed over, the patients had recovered completely. It has been suggested that the operations may have been performed on patients suffering from various forms of insanity, with the idea of letting out a bad spirit. Something like this is needed to account for the frequency with which trephined skulls are found in certain places, and, if true, will afford a basis for some interesting reflections on insanity thus early in mankind.

The question of epidemics in the distant past may arise and find a more or less satisfactory answer in paleopathology. There seems no doubt now that tuberculosis can be traced in certain regulations of the Code of Hammurabi, about 2,000 B. C. Dr. John K. Mitchell (3d), at the Philadelphia museum, felt that he could trace definite signs of the occurrence of infantile paralysis in the mummy of a young prince of one of the early dynasties of Egypt, probably about 4,000 B. C. The presence of tsetse flies in the Oligocene of Colorado suggests the possibility of trypanosomiasis among the herds of the earliest animals in this country of which we know anything. It is possible that some of the huge animals of the early times, whose strength would seem to secure them a power of survival, disappeared not before the severity of changing climate or the attacks of smaller but more active animals, but before the insidious invasion of microorganisms, which literally swept them out of existence. Professor Conklin of Princeton, in his lectures on biology, reminds us that the great rule of history has been that "the mighty are put down from their seats, and those of low degree are exalted."

Paleopathology may very well prove capable of throwing light on practical problems of present day medicine, though of itself it is interesting because it extends the range of the history of medicine from that of human times into the very oldest periods. Physicians can scarcely help but realize how much of dignity is added to our everyday pathology, once we appreciate that pathologic changes similar to those that we study now can be found in the bones and other durable remains of old-time animals, literally thousands of generations ago and probably even hundreds of thousands of years before our era.

INSECT-BORNE DISEASES AND THE WAR

Owing to the transport of troops to and from almost all parts of the world, the war has provided a ready means of conveying diseases, hitherto unknown, to various countries. This has been the case especially with tropical diseases, which in the past three years have occurred with more or less frequency in temperate climates, in France and England, for example. In some features, the war has resembled the Crusades in that during its continuance there has been a constant stream of large groups of men traveling backward and forward from eastern Europe and Asia to western Europe. There has been an increasing ingress into France, and to a considerably less extent, into England, of troops from nearly every part of Africa and the Orient; therefore the parasitic diseases that have been introduced in this manner cannot fail to have infected some of our men, and unless precautions are taken may be a menace to our civilian population.

Some of the maladies prevalent in hot climates already have been shown to be spread chiefly or largely by insects, and, of course, it is more than likely that insects are factors in the transmission of the majority of these infections. Mosquitoes and biting flies are responsible for some of the most deadly diseases, as malaria, yellow fever and sleeping sickness, while the rat flea plays the most prominent part in the dissemination of plague. The mosquitoes *Stegomyia fasciata* and *Culex* and the sandfly *Phlebotomus perniciosus* are considered to be the vehicles whereby Mediterranean dengue is conveyed to man. Adrien[1] believes that the phlebotomus is the "carrier," mosquitoes acting only as possible transmitters. Cleland and Bradley,[2] describing an outbreak of dengue in Australia, give data that seem to show beyond a doubt that the virus of dengue in Australia is conveyed by *Stegomyia fasciata*, which undergoes some development in this insect. Indeed, according to these authors, the disease and its mode of transmission exhibit many points of resemblance to yellow fever. The body louse is rightly indicted as being largely concerned in the spread of typhus fever, and the same insect has been practically proved guilty of transmitting trench fever. In fact, this is apparently the important and common mode of transmission. Incidentally, it may be said that although the bedbug has been under suspicion for some time as an agent in the conveyance of certain infectious diseases, investigations undertaken thus far tend to clear it of the imputation.

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[1] The Antiquity of Disease, Current Comment, J. A. M. A. 71:1829 (Nov. 30) 1918; Prehistoric Surgery, editorial, J. A. M. A. 72:42 (Jan. 4) 1919.

[2] Keith, Arthur: The Antiquity of Man, Philadelphia, J. B. Lippincott Company, 1915.

The particular point which it is desired to emphasize is that the return of troops from Europe to this country is, to some extent, a source of danger to the general population. Diseases foreign to our shores may be brought into this country by returned soldiers, if great care is not taken, especially those introduced mainly by the agency of body lice. While it is obvious that with the cessation of hostilities the ridding of troops from body vermin can be considerably facilitated, the actual danger of spreading disease by lice may not be greatly minimized. Disinfection may not be so thoroughly carried out as in time of war, and it is by no means improbable that demobilized soldiers on their return to America may carry infected lice on their bodies or on their clothes. Moreover, there seems to be little doubt that on the American troops will fall the duty of performing some of the policing of Europe. They may be stationed in the Balkans, in parts of Russia and in the Central Empires, in some of which countries conditions favorable to the contraction of insect-borne diseases, and of lice-borne diseases in particular, exist. On the borders of Serbia it needs only a spark to start a conflagration of typhus fever, and the only methods of preventing such a calamity, in which, if extraordinary precautions are not taken, the troops might participate, are to exterminate the body lice so far as is possible. It must be borne in mind that in order to prevent typhus fever or trench fever, or, at any rate, to limit their spread among troops, the best efforts must be put forth to keep soldiers from infestation with lice. There is another point to which attention may be drawn: It is thought to be possible to disseminate trench fever by the agency of urine and sputum, both of which become infected and presumably may remain infected for a considerable length of time. Therefore it seems advisable that urine and sputum of returned soldiers who have been subjected to infestation by lice should be sterilized. If it may appear somewhat far fetched to suggest that troops returned from Europe may infect the civilian population with parasitic diseases, it remains to be said that parasitic diseases have occurred among the white population of France and England imported by troops from the Orient, Africa or eastern Europe. In existing circumstances, it is wise to err on the side of caution, and every conceivable step should be taken to protect the soldiers from infection by insect-borne diseases and to safeguard the inhabitants of this country from the spread of similar diseases introduced by the returned soldier.

SURVEY OF CRIPPLES IN CLEVELAND

One of the good results of the war has been a stimulation of interest in the physically handicapped, in cripples of whatever degree of incapacity. Systematic efforts are being made to devise apparatus, occupations and methods of training that will enable the cripple to remain or become self-supporting. One evidence of this interest is the report on the education and occupations of cripples based on a survey of cripples in Cleveland. It is compiled by the Welfare Federation of Cleveland and published by the Red Cross Institute for Crippled and Disabled Men of New York City. In spite of our boasted progress, public sentiment in most of our cities has become hardened to the spectacle of the lame beggar or the crippled shoestring merchant or lead-pencil vender. A survey, establishing the exact amount of dependency due to this cause, is a valuable contribution to our knowledge in a field in which accurate data are lacking. With the exception of the Massachusetts census report for 1905, little attention has been given to this subject, so that the Cleveland survey is not only the first census of the cripples of a city that has been taken but is also the most comprehensive and analytic study of its kind ever undertaken. A house-to-house canvass, involving visits to 150,000 families, revealed 4,186 persons physically defective, crippled or incapacitated to such an extent as to place them within the limits of the definition adopted by the committee. In a similar census in Birmingham, England, in 1911, the definition adopted was: "a person whose muscular movements are so far restricted by accident or disease as to affect his capacity for self-support." The Cleveland committee found it advisable to modify this double physical and economic qualification so as to make the census include all persons physically handicapped, without regard to their economic condition. Taking the estimated population of Cleveland for 1916 as 674,073, the estimated ratio of cripples is 6 cripples to each 1,000 inhabitants. This tallies very closely with the results of the Massachusetts census, which gave 5.7 per thousand. Of the 4,186 cripples found, 2,638 were male and 1,548 female. Grouped by ages, 936, or 22 per cent., were less than 15 years of age; 2,553, or 61 per cent., were between the ages of 15 and 60, and 697, or 17 per cent., were over 60 years of age. Two thousand and forty-six, or nearly one half of the total number, became crippled before they were 15 years of age; 1,820, or 43 per cent., became crippled during the priod of active working life, that is, between 15 and 60, while only 273, or 6 per cent., became crippled after the age of 60 years. Regarding the form and degree of incapacity, 735, or 17 per cent., lost arms or portions of arms; 2,404, or 58 per cent., lost legs; 332, or 8 per cent., lost one or both arms or one or both legs; 272, or 6 per cent., had deformity or paralysis of the body, and 443, or 11 per cent., disability of arms or legs, or of both arms and legs and of body. The causes of disability are: congenital, 301; occupational accidents, 468; other accidents, 1,323; infantile paralysis, 525; other diseases, 1,437; not stated, 132. Occupational accidents, most of which were preventable, and infantile paralysis, a preventable contagious disease, are together responsible for 993, or 25.72 per cent., while crippling due to accidents and diseases of all kinds amount to 3,753, or 89.65 per cent. Infantile paralysis alone is responsible for one eighth of all the cripples and for 41 per cent. of the crippled children. Tuberculosis caused 15 per cent. of the crippling among children.

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[1] Adrien, Charles: Arch. de méd. et pharm. nav. **105**: 275 (April) 1918.

[2] Cleland, J. B., and Bradley, B.: J. Hyg. **16**: 317 (Jan.) 1918.

For obvious reasons, the percentage of illiterates was high. Three hundred and forty-seven under 9 years of age were not attending school; 282 cripples over 10 years of age were illiterate. The figures regarding employment are gratifying: Out of 3,250 persons over 15 years of age, 1,912, or 59 per cent., were employed in spite of the handicap of their physical condition, while 1,338, or 41 per cent., were not employed. Wages for crippled persons employed range from $6 to $50 a week, the largest number being in the $10 to $15 a week class; 1,743 are earning a living, and more than half of these are earning a living not only for themselves but also for others. Of those supported by other means than work, 1,034 out of the total of 1,418 are supported by their families, 136 by income, and 125 by relief agencies; fifty-six are in receipt of industrial pensions. Of 593 females at work, 400, or 67 per cent., are active housekeepers. Of the sixty occupations followed by four or more crippled men, the largest group were unskilled workmen or those doing work not dependent on muscular activity. The report, which contains many tables and much interesting data, as well as personal sketches and the histories of selected cases, concludes with recommendations for the reduction of crippling diseases and accidents and the better care of persons already disabled.

The survey and report form a most commendable piece of constructive work. Far too much of our public health energy heretofore has been expended in work that was largely sentimental and nonproductive. The first requisite for the improvement of any condition is an accurate knowledge of all the facts pertaining to that condition. In too many instances in the public health field, our knowledge is fragmentary, vague and unsystematic. The method that has produced results in scientific circles must be followed in the public health field: careful, painstaking, detailed study of small sections of the field, gradual extension of knowledge, and final grouping of all available data into a generalized whole. To this end, the Cleveland survey is a praiseworthy contribution.

Current Comment

OUR FOREIGN EXCHANGES IN 1918

Notwithstanding the censor and the U-boats, the foreign language exchanges have been received with great regularity so that the file for 1918 is complete to date for nearly all, and they have been duly indexed. They arrived sometimes far out of chronological order, but as months passed this condition righted itself. No Russian journals of any kind were received during 1918, and of course no journals from Germany or Austria. But the German language was represented, as the *Correspondenz-Blatt für Schweizer Aerzte*, of Basel, Switzerland, and one other of the three Swiss journals listed, and some of the five Japanese exchanges are published in German. The aspect of the French and Italian journals of 1918 with their blank or effaced advertising pages is of historical interest. The scarcity of paper is shown by the smaller number of pages and the quality of the paper. Italy seems to have suffered most in the latter respect; the four weeklies are printed on very poor paper. The *Riforma Medica* looks, indeed, as if it "had been through the war," as the large size of its page, 10 by 14 inches, and the consequent folding of the paper to mail it, give it a dilapidated air even when first received. The *Policlinico* in its compact 7 by 10 page keeps its shape perfectly, but a recent editorial in this important weekly stated that "paper which before the war cost 40 or 50 lire a hundredweight now costs from 350 to 400 lire, and is of such poor quality that in normal times we would not accept it as a gift." The journals of South and Central America, Mexico and the West Indies show no appreciable evidence of the scarcity of paper, although all our exchanges complain of the high price. The 1918 file is complete to date for our three Swedish exchanges, the one Norwegian monthly, the two Danish weeklies, and the four Portuguese journals from Brazil. Nine Italian journals are complete with the exception of one copy of the *Policlinico*. Two of the twenty-one French exchanges lack a few numbers, as also two of the eight exchanges from Spain and four of the twenty-eight received from South and Central America, Mexico and the West Indies. Thus only nineteen numbers failed to reach us of eighty-three foreign language exchanges, regularly indexed, while the greatest war in history was being waged, with diabolical efforts to arrest all ocean traffic, including the mails.

A HEALTH ALMANAC FOR MINERS

Some years ago a number of state health officials, impressed with the value of the old-fashioned almanac as a cherished and frequently consulted household guide, objected to the apparent monopoly of this medium by the "patent medicine" interests. They saw no reason why an almanac could not be made a messenger of health instead of an advance agent for somebody's green pills. Accordingly, health almanacs were issued by a number of our state health departments, apparently with good results. The Bureau of Mines of the Department of the Interior has followed the same plan in issuing Miners' Circular 24, a miners' safety and health almanac for 1919. It is published in cooperation with the United States Public Health Service. The usual and familiar monthly tables are interspersed with reading matter, offering good advice to the miner regarding his health and safety. The table of contents shows that a majority of the subjects are health topics, such as pneumonia, smallpox, drinking water, sore eyes in new-born babies, pellagra, flies, mosquitoes, garbage, typhoid, "patent medicines," and the care of the teeth. Other articles relate to safety, under such headings as responsibility of the miner, ten commandments to prevent accidents, mechanical safeguards, methods of making coal dust harmless, precautions in a gaseous mine, mine rescue apparatus, and explosives used in mining. The calendar, in place of the familiar historical events, contains a health or safety fact or warning for each day. The reading matter is attractively and interestingly written, and illustrations and diagrams abound. This effort to teach health and industrial safety to miners through an old and familiar medium is worthy of imitation in other occupations.

HEREDITARY TENDENCY TO FORM CERTAIN TUMORS

The part played by heredity in the incidence of a not inconsiderable number of diseases has come to be recognized as an indisputable factor in the study of their causation. The tendency to form vascular tumors of the skin and mucous membranes, pigmented patches in the skin, and polyadenomas, for example, is now believed to be a dominant trait, as the student of genetics terms it. Dr. Charles B. Davenport[1] of the Carnegie Institution's Station for Experimental Evolution believes that to this group of heredity belong also epidermolysis bullosa, angioneurotic edema, and persistent hereditary edema, and such skin diseases as psoriasis, porokeratosis and ichthyosis. Recently he has secured the statistical evidence which demontrates that the rather rare condition known as multiple neurofibromatosis represents a similar hereditary tendency. It is reported that despite the rarity of the malady there are many cases in the literature in which from two to six members of the family show some of the symptoms. From the fact that only blood relatives are affected, Davenport adds that the disease is not a communicable one, and it is equally certain that it is not induced by infection through the placenta. The two sexes are nearly equally apt to be affected—of 243 affected persons, 56.8 per cent. are males. The disease tends to recur without a break in the generations, and is equally apt to come down the male and the female line. Consequently it looks as though the hereditary factor in neurofibromatosis is a dominant one. Modern experimental studies on the spontaneous occurrence of tumors in laboratory animals have given much support to the prominence of the hereditary factor in the problem that they present. Davenport states that in not a few cases the removal of neurofibromas in man has been followed by the appearance of malignant growths at the same spot. As neurofibromas, which thus seem to be related to cancerous growths, have an inheritable basis, it is suggested that the alleged association of cancers in general with such a hereditary factor is further strengthened.

INDIANA GOVERNOR'S HEALTH RECOMMENDATIONS

It is to be expected that each year will show increased interest in constructive health legislation on the part of state executives. This naturally growing interest has been augmented by the prominence given to health questions through problems arising out of the war. It is not surprising, therefore, but rather an evidence of progress in conformity with the spirit of the times, that Governor Goodrich of Indiana should devote a considerable amount of space to health topics in his message to the General Assembly. "It is the first duty of the state," he says, "to do everything possible to conserve the health, the physical and moral well-being of our people. It has been demonstrated that our public health laws are inadequate to meet the situation. The revelations of the draft examinations are convincing. Not only has a large proportion of our young men been pronounced unfit for service and rejected on the initial examination, but as the further sifting process has been continued, it has been ascertained that at least one-third of the young men of the country were unfit for service. . . . Physical education is as necessary to the development of our young people as mental training. . . . Our educational system should be so organized as to provide for compulsory physical education of our young people." As a practical recommendation for better health conditions in the state, the governor indorses the movement for all-time health officials. This indorsement should be of great assistance to the state board of health in its efforts to secure whole-time town and county health officials. The governor also discusses the rural school question from a health standpoint, basing his recommendations on the surveys and reports made by the Federal Commissioner of Education and the National Education Association, in cooperation with the American Medical Association. While admitting a just pride in the work and accomplishment of the rural schools of Indiana, he urges on the legislature that much remains to be acomplished for the improvement of sanitary and health conditions among rural schoolchildren and recommends careful consideration of the problems involved. Governor Goodrich's message is a gratifying evidence of the growing interest taken in health problems by our most progressive state executives. With such a governor progress in health matters in Indiana should be rapid.

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[1] Davenport, C. B.: Hereditary Tendency to Form Nerve Tumors, Proc. Nat. Acad. Sc. 4: 213, 1918.

Association News

THE ATLANTIC CITY SESSION

Governmental Status Given the Victory Meeting Through Approval of the Secretary of War

As already announced, the annual session to be held next June will be a "victory" meeting. One of the special features will be the bringing together of medical representatives of the allied governments associated in the world war to plan for cooperative interallied study and research, to discuss methods for taking advantage of the advances in medical science that have developed because of the war, and to cement the bonds of an enduring friendship among medical men. The following correspondence relates to the subject:

Washington, D. C., Dec. 23, 1918.

My dear Mr. Secretary:

The annual meeting of the American Medical Association will be held at Atlantic City, N. J., from June 9 to 13, 1919. It has a membership of more than 80,000 physicians and surgeons. Approximately 40,000 of its members have served in the Medical Department of the Army during the world war. The annual meeting at Atlantic City will be called a victory meeting of the American Medical Association.

It is desired by the leading members of the medical profession of this country to make this victory meeting a notable one, and that representative medical men of all of the allied governments associated in the world war may be invited to attend the meeting for the purpose of conference on and compilation of the knowledge of medical science growing out of the war.

That these invitations to the foreign representatives may have something of an official character, it is requested that the invitations may be sent by the officers of the American Medical Association under the patronage of the Medical Department of the Army of the United States.

No expense to the United States government is implied in this suggestion. Attached hereto is a memorandum for your signature if the proposition meets your approval.

Very sincerely yours,
(Signed) M. W. Ireland,
Surgeon-General, U. S. Army.

To the Honorable Newton D. Baker,
Secretary of War.

Dec. 23, 1918.

The American Medical Association is authorized, under the patronage of the Medical Department of the Army of the United States, to invite medical representatives of the allied governments associated in the world war to the annual victory meeting to be held at Atlantic City, New Jersey, from June 9 to 13, 1919.

(Signed) Newton D. Baker.

The approval of the Secretary of War gives the session of the Association a governmental status. The Board of Trustees has appointed and empowered the following committee to act for the Association in inviting these delegates: Arthur Dean Bevan, President; Alexander Lambert, President-Elect; Alexander R. Craig, Secretary; Merritte W. Ireland, Surgeon-General of the U. S. Army; William C. Braisted, Surgeon-General of the U. S. Navy; William H. Welsh and William J. Mayo, Ex-Presidents; and the following members of the Board of Trustees: Philip Marvel, Wendell C. Phillips, D. Chester Brown and Frank Billings, the last mentioned being chairman of the committee.

Alexander R. Craig, Secretary,
American Medical Association.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending January 10, there were in the Medical Reserve Corps 626 officers. This personnel includes forty-eighty majors, eighty-seven captains and 491 lieutenants. There were in the regular Medical Corps 26,017, a decrease of 1,597 since the previous week. Discharges to date include 8,194 officers.

Awards for Bravery

The Commander in Chief, in the name of the President, has awarded the Distinguished Service Cross to the following named officers of the medical department:

Lieut. ROBERT H. MURDOCH, deceased, Medical Corps, 47th Infantry. For repeated acts of extraordinary heroism in action at Sergy, France, July 29-31, 1917; and at St. Thibaut, France, August 6-12, 1918. Accompanying his battalion in the attack on Sergy, Lieutenant Murdoch advanced for more than a mile under heavy shell fire, and as soon as the southern half of the town had been taken he established his dressing station, maintaining it during the three days of fighting under constant and severe bombardment. When his battalion went into action at St. Thibaut this faithful officer again displayed heroic devotion to duty by working in his dressing station under the most trying conditions for six days while the town was bombarded with gas and high explosive shells.

Major JACKSON S. LAWRENCE, Medical Corps, 368th Infantry: For extraordinary heroism in action at Binarville, France, Sept. 30, 1918. Major Lawrence, with two soldiers, voluntarily left shelter and crossed an open space 50 yards wide, swept by shell and machine gun fire, to rescue a wounded soldier whom they carried to a place of safety.

Lieut. JOHN F. DOUDNA, Lake City, Mich., Medical Corps, 362d Infantry. For extraordinary heroism in action. This officer was under constant shell fire with his battalion for 17 days, and though he had been painfully wounded by a machine gun bullet, he remained at his post rendering first aid to the wounded night and day, performing the duties of two other medical officers, who had been incapacitated, in addition to his own. Lieutenant Doudna's utter disregard for personal danger and complete devotion to duty made possible the rapid evacuation of the wounded, thus materially keeping up the morale of the combat troops and alleviating the suffering of the wounded.

Lieut. ROSS E. WEAVER, Medical Corps, 102d Infantry. For extraordinary heroism in action at Marcheville, Sept. 26, 1918. Lieutenant Weaver showed complete disregard of personal safety by remaining with the foremost elements and administering aid to the wounded throughout the day under constant artillery bombardment and direct machine gun and rifle fire from the enemy.

Lieut. CHARLES W. COMFORT, New Haven, Medical Corps, 102d Infantry. For extraordinary heroism in action at Seicheprey, France, April 20, 1918. Lieutenant Comfort administered first aid for 36 hours, without rest or relief, to numerous wounded in the open, almost constantly under heavy artillery fire, and assisted in their evacuation, thereby setting an example of heroic performance of his duties under the most trying circumstances. A bronze oak leaf is awarded to Lieutenant Comfort for the following act of extraordinary heroism: On Sept. 26, 1918, near Marcheville, France, he displayed the highest courage and devotion to duty, being continually present on the front line administering first aid to the wounded under violent artillery and machine gun fire.

Lieut. JOSEPH H. DUNN, 101st Sanitary Train. For extraordinary heroism in action near Marcheville, France, Sept. 25-26, 1918. Lieutenant Dunn assisted in establishing and maintaining an ambulance dressing station in an advanced position, where he labored heroically dressing and evacuating the wounded in full view of the enemy, under constant heavy bombardment by the enemy.

Lieut. HENRY E. CHRISTIANSEN, Chicago, Ill., Medical Corps, 101st Ambulance Company. For extraordinary heroism in action at Saulx, France, Sept. 25-26, 1918. Lieutenant Christiansen established and operated a dressing station in an advanced position under constant heavy bombardment by the enemy. When word was received that our troops were withdrawing and permission had been given to move his station to a safer position he declined to withdraw, but continued his work of ministering to the wounded.

Specialized Treatment for the Wounded

In order to furnish specialized treatment for the wounded Surgeon-General Ireland has issued instructions to commanders of hospitals that special care be taken to provide specialists for treatment of various types of wounds. In addition arrangements have been made for the sending of certain classes of patients to specific hospitals where special facilities for treatment are provided. The following items are taken from a list recently published:

Blindness (or near blindness).—General Hospital No. 7, Roland Park, Md.

Deafness (total or near total).—General Hospital No. 11, Cape May, N. J.

Insane (officers).—General Hospital No. 1, Williamsbridge, N. Y.

Insane (officers and enlisted men).—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 4, Fort Porter, N. Y.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 13, Dansville, N. Y. (no violent, suicidal or homicidal cases); General Hospital No. 25, Fort Benjamin Harrison, Ind.; General Hospital No. 26, Fort Des Moines, Iowa;

General Hospital No. 28, Fort Sheridan, Ill.; General Hospital No. 34, East Norfolk (Pondville), Mass.; base hospital, Fort Sam Houston, Tex.

Maxillofacial (injuries of face and jaw).—Walter Reed General Hospital, Takoma Park, D. C.; General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 11, Cape May, N. J.

Speech defects (which are not neurotic).—General Hospital No. 11, Cape May, N. J.

Neuroses (functional) drug addicts and inebriates.—General Hospital No. 30, Plattsburg Barracks, N. Y.

Epileptics and mental defectives.—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 1, Williamsbridge, N. Y.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 25, Fort Benjamin Harrison, Ind.; General Hospital No. 26, Fort Des Moines, Iowa; General Hospital No. 28, Fort Sheridan, Ill.; General Hospital No. 29, Fort Snelling, Minn.; base hospital, Fort Sam Houston, Tex.

Tuberculosis, pulmonary.—General hospital, Fort Bayard, N. M.; General Hospital No. 8, Otisville, N. Y.; General Hospital No. 16, New Haven, Conn.; General Hospital No. 17, Markleton, Pa.; General Hospital No. 18, Richland (Waynesville), N. C.; General Hospital No. 19, Oteen (Biltmore), N. C.; General Hospital No. 20, Whipple Barracks, Ariz.; General Hospital No. 21, Denver.

Amputations (lower extremities only).—General Hospital No. 3, Colonia (Rahway), N. J.

Amputations (for amputations fingers and toes, see General surgery).—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 10, Boston; General Hospital No. 26, Fort Des Moines, Iowa; General Hospital No. 29, Fort Snelling, Minn.

Arthritis, chronic (nontraumatic).—Letterman General Hospital, San Francisco; Walter Reed General Hospital, Takoma Park, D. C.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 9 (ambulant cases only), Lakewood, N. J.; General Hospital No. 10, Boston; General Hospital No. 26, Fort Des Moines, Iowa; General Hospital No. 28, Fort Sheridan, Ill.

Wounds or injuries of the skull or brain (including traumatic epilepsy) and injuries or diseases requiring surgical treatment of importance of eye, ear, nose and throat.—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 11, Cape May, N. J.

Wounds or injuries of the spinal cord and organic disease of nervous system.—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 3, Colonia (Rahway) N. J.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 11, Cape May, N. J.; General Hospital No. 28, Fort Sheridan, Ill.; General Hospital No. 29, Fort Snelling, Minn.

Peripheral nerve injuries and paralyses (including healed or unhealed wounds, with or without fracture).—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 1, Williamsbridge, N. Y.; General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 3, Colonia (Rahway), N. J.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 11, Cape May, N. J.; General Hospital No. 26, Fort Des Moines, Iowa; General Hospital No. 28, Fort Sheridan, Ill.; General Hospital No. 29, Fort Snelling, Minn.

Orthopedic cases.—(1) Deformities of extremities due to or associated with contractures of muscles, ligaments and tendons; (2) derangements and disabilities of joints, including articular fractures; (3) deformities and disabilities of the feet; (4) cases requiring tendon transplantation.—Walter Reed General Hospital, Takoma Park, D. C.; Letterman General Hospital, San Francisco; General Hospital No. 1, Williamsbridge, N. Y.; General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 3, Colonia (Rahway), N. J.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 9, Lakewood, N. J. (ambulant cases only); General Hospital No. 10, Boston; General Hospital No. 26, Fort Des Moines, Iowa; General Hospital No. 28, Fort Sheridan, Ill.; General Hospital No. 29, Fort Snelling, Minn.; General Hospital No. 36, Detroit; General Hospital No. 39, Long Beach, Long Island, N. Y.

General medical cases and general surgical cases will be treated in all the cantonment base hospitals and in most of the general hospitals.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Center—Tatun, S. C. (C.)
Loachapoka—Langley, O. V. (L.)
Montgomery—Baker, J. N. (M.)

ARIZONA

Globe—Kirmse, A. (L.)
Tucson—Thomas, C. A. (C.)

ARKANSAS

Bodcaw—Garner, W. M. (L.)
Clarksville—Manley, R. N. (L.)
De Queen—Kitchens, C. E. (L.)
Fort Smith—Johnson, J. E. (L.)
Haynes—Haynie, W. R.. (L.)
Hope—Russell, M. V. B. (L.)
Hot Springs—Sanders, T. E. (L.)
Huntsville—Youngblood, F. (L.)
Little Rock—Bond, S. P. (L.)
Horner, E. J. (L.)
Marked Tree—Baird, J. L. (L.)
Newport—Watson, E. L. (C.)
Paragould—Baker, E. S. (L.)
Springdale—Martin, J. E. (C.)
Varner—Thiolliere, A. C. (C.)
Wilmar—Butler, E. D. (L.)
Harris, S. (L.)

CALIFORNIA

Gardena—Leake, N. A. (L.)
Linda Vista—Jones, J. P. (L.)
Los Angeles—McClish, C. L. (C.)
Mellman, C. (L.)
Sweet, E. B. (C.)
Pomona—Smith, R. T. (C.)
Sacramento—Arbogast, J. L. (C.)
Twitchell, E. W. (C.)
San Diego—Wegeforth, H. M. (C.)
San Francisco—Hillyer, F. M. (C.)
San Jose—Van Dalsen, S. B. (C.)
Santa Cruz—Piper, H. E. (C.)
Saratoga—Hogg, R. L. (L.)

COLORADO

Blanca—Soland, L. W. (L.)
Colorado Springs—Marbourg, E. M. (C.)
Denver—Hossler, W. H. (L.)
Shafer, H. S. (L.)
Lafayette—Braden, J. M. (C.)
Telluride—Washburn, F. L. (C.)
Trinidad—Espey, J. G. (C.)

CONNECTICUT

Bridgeport—Beck, M. C. (L.)
Finkelstone, B. B. (L.)
Hartford—Griggs, J. B. (C.)
Sagarino, J. F. (L.)
Litchfield—Deming, N. L. (M.)
New London—Black, R. E. (C.)
North Haven—Nichols, R. W. (L.)

DISTRICT OF COLUMBIA

Washington—Garnett, A. Y. P. (C.)
Kemble, A. (M.)

FLORIDA

Jacksonville—Bowen, F. J. (C.)
Lakeland—Maynard, B. H. (C.)
Springdale—Farnell, W. W. (L.)

GEORGIA

Atlanta—Elkin, A. (L.)
Fuller, G. W. (L.)
Huguley, G. P. (C.)
Hutchins, M. B. (C.)
Savannah—Myers, W. H. (C.)
Statesboro—Mooney, A. J. (C.)
Whitesburg—Beason, L. (L.)

IDAHO

Boise—Stewart, J. L. (C.)
Filer—Newberry, A. A. (L.)
Hailey—Dutton, H. H. (L.)
Mackay—Farrell, N. H. (L.)
Orofino—Fairly, J. M. (C.)
Rexburg—Espe, G. G. (L.)

ILLINOIS

Ashmore—Andrews, P. K. (L.)
Aviston—Reinhardt, O. F. (L.)
Beecher City—Brooks, E. W. (C.)
Canton—Zeigler, W. T. (C.)
Chicago—Acker, W. H. (L.)
Blitzen, N. L. (L.)
Boddiger, C. E. (C.)
Bosler, A. G. (C.)
Bracken, G. F. (C.)
Britton, J. A. (M.)
Conroy, T. F. (C.)
Devine, E. J. (L.)
Ellis, J. W. (C.)
Felsher, W. Z. (L.)
Graves, R. E. (C.)
Grotowski, L. (L.)
Jeffries, W. G. (L.)
Kelley, M. J. (L.)
Kuhn, L. P. (C.)
Moore, J. H. (L.)
Napheys, W. D. (C.)
Penchina, M. (L.)
Sachtleben, C. G. (L.)
Schmaer, C. H. (L.)
Schuster, S. A. (L.)
Sempill, R. A. (C.)
Skembare, E. C. (L.)
Smith, G. T. (C.)
Stanton, J. E. (C.)
Wilson, R. P. (L.)
Wood, C. A. (L. C.)
Danville—Scott, I. J. (C.)
De Soto—House, O. (L.)
East St. Louis—Hulick, G. O. (L.)
Spannagel, W. C. (L.)
Freeport—Grant, J. J. (L.)
Genesee—Parsons, A. (C.)
Girard—Foote, C. H. (L.)
Hidalgo—Vanatta, C. L. (L.)
Hinsdale—Hoffman, E. H. (C.)
Joliet—King, H. T. (L.)
Joppa—Roberts, T. W. (L.)
Lacon—Bradford, A. (C.)
La Moille—Crede, W. H. (C.)
Leland—Moorhead, A. C. (L.)
Lostant—Schoenneshoefer, W. (C.)
Louisville—Campbell, G. W. (L.)
Dillman, J. V. (C.)
Matherville—Murrell, C. M. (L.)
McLeansboro—Johnson, J. A. (L.)
Moline—Bennett, H. S. (C.)
Nashville—Vernor, R. C. (L.)
Pleasant Hill—Goodman, J. E. (L.)
Pleasant Plains—Fink, F. C. (L.)
Richmond—Foster, W. E. (L.)
Ridgeway—Murphy, J. C. (L.)
Rockford—Catlin, S. R. (C.)
Shabbona—Moore, F. B. (L.)
Shelbyville—Hulick, C. H. (L.)
Shumway—Lorton, S. C. (L.)
Sigel—Heuck, H. H. C. (L.)
Springfield—Lockie, G. D. (L.)
Sycamore—Bell, F. H. (L.)
Vienna—McCall, T. E. (C.)
Washington—Gott, W. A. (C.)
Westville—Brownstein, S. W. (L.)
Wyanet—Herrick, R. E. (L.)
Xenia—Campbell, C. S. (L.)

INDIANA

Cates—Stackhouse, F. (L.)
Edwardsport—Scudder. J. A. (L.)
Elizabethtown—Jackson, C. M. (L.)
Emison—Hodges, W. A. (L.)
Evansville—Coleman, W. H. (C.)
Fairmount—Aldrich, H. (L.)
Fontanet—Newlin, E. O. (L.)
Gary—Skeen, E. D. (L.)
Greencastle—Lemmon, B. E. (L.)
Hartford City—Hollis, W. A. (L.)
Indianapolis—Brown, B. A. (C.)
Culloden, W. G. (C.)
Leonard, H. S. (L.)
Long, W. H. (L.)
Pape, E. A. (L.)
Terrell, B. J. (C.)
Jonesboro—Lucas, P. H. (L.)
Kokomo—Johnson, O. M. (L.)
Kurtz—Kern, F. W. (L.)
Lawrenceburg—Smith, G. F. (L.)
London—McDonald, O. H. (L.)
New Castle—Wiggins, D. S. (C.)
Ninevah—Lind, H. G. (L.)
Pendleton—Martindale, H. C. (L.)
Portland—Moran, M. M. (L.)
Rockville—Collings, T. J. (L.)
South Bend—Dehey, T. J. (C.)
Shanklin, R. C. (C.)
St. Paul—Hodges, V. L. (L.)
Sykesville—Purdum, H. D. (C.)
Terre Haute—Fortune, J. L. (L.)
Union City—Zeller, F. A. (C.)
Warsaw—Howard, C. N. (C.)
Washington—Boner, G. W. (C.)
Whitestone—Little, W. D. (L.)
Williamsburg—Griffis, V. C. (L.)
Zanesville—McBride, J. L. (C.)

IOWA

Arthur—Patterson, S. T. (L.)
Cedar Rapids—Krejsa, O. (C.)
Centerville—James, C. S. (C.)
Charles City—McBeil, B. F. (L.)
Clarinda—Matthews, R. J. (L.)
Columbus Junction—Miller, R. R. (L.)
Council Bluffs—Benjamin, H. P. (L.)
Cleaver, G. D. (L.)
Dallas Center—Glew, P. B. (L.)
Des Moines—Brinkman, W. F. (L.)
Harnagel, E. J. (C.)
La Piana, F. (C.)
Morden, R. R. (C.)
Prather, R. W. (L.)
Dubuque—Keogh, J. V. (C.)
Fairfield—Myrick, E. G. (L.)
Fort Dodge—Dorsey, T. J. (L.)
Fremont—Gillett, F. A. (L.)
Goodell—Snearly, G. E. (L.)
Gowrer—Lundvick, A. W. (L.)
Grinnell—Talbott, E. F. (C.)
Hawkeye—Walsh, T. N. (L.)
Hull—Maris, G. (L.)
Iowa City—Morton, M. T. (L.)
Ireton—McCaughan, T. E. (C.)
Logan—Kennedy, C. S. (C.)
Lorimer—Ayres, E. C. (C.)
Monona—Tinker, F. E. (L.)
Mystic—Labagh, N. W. (L.)
Nora Springs—Henely, E. (C.)
Parkerburg—Hobson, T. A. (L.)

KANSAS

Benedict—Riley, B. R. (C.)
Bennington—Hinshaw, L. M. (L.)
Caney—Bigelow, G. J. (L.)
Chanute—Barker, J. W. (L.)
Corning—Davis, W. L. (L.)
Coyville—Henderson, L. E. (L.)
Cullison—Martin, G. E. (L.)
De Sota—Fortney, A. M. (C.)
Dighton—McGinnis, S. S. (L.)
Douglas—Fegtly, A. W. (L.)
Dunkirk—Pierce, R. P. (L.)
Ellsworth—Zerzan, G. F. (C.)
Elmo—Klingberg, W. A. (C.)
Emporia—Corbett, A. W. (L.)
Fontana—Fisher, C. A. (C.)
Greensburg—McLaughlin, J. A. (C.)
Hays—Anders, P. C. (L.)
Highland—Graham, J. W. (L.)
Humboldt—Payne, O. C. (L.)
Hutchinson—Forney, L. O. (L.)
Idana—Moore, D. J. (L.)
Leavenworth—McGee, C. J. (C.)
Lenexa—Jones, P. L. (L.)
Lincolnville—DeMand, J. W. (L.)
Madison—Haynes, E. E. (C.)
Paola—Lowe, O. C. (L.)
Parsons—Christmann, P. (C.)
Topeka—McNair, C. F. (C.)
Wellington—Coplan, L. S. (C.)
Downing, R. H. (L.)
Martin, W. M. (C.)
Whitewater—Nossman, A. H. (L.)
Wichita—Little, G. R. (L.)

KENTUCKY

[illegible]—W. [illegible], C. (L.)
[illegible], R. W. (C.)
[illegible], J. N. (L.)
Henderson—Yeaman, M. H. (M.)
Hopkinsville—Woodard, R. L. (C.)
Lexington—Busby, E. L. (C.)
Louisville—Allen, E. S. (C.)
Braun, S. A. (L.)
Galvin, J. W. (C.)
Kelly, C. W., Jr. (L.)
Liggett, H. T. (C.)
Scottville—Meredith, H. M. (C.)

LOUISIANA

Leesville—Williams, S. S. (L.)
New Orleans—Hogan, E. A. (L.)
McCarthy, E. (L.)
Seemann, W. H. (C.)

MAINE

Bangor—Woodcock, A. (C.)
Bath—Kershner, W. E. (M.)
Harrisburg—Frakes, E. N. (L.)

MARYLAND

Baltimore—Hardy, G. E. W., Jr. (C.)
Rivers, T. M. (L.)
Welch, W. H. (Col.)

MASSACHUSETTS

Boston—Baker, H. M. (L.)
Chase, H. M. (C.)
Dewees, J. H. (C.)
Lynch, J. M. (L.)
Cambridge—Fiege, H. R. (L.)
Chicopee—Meyer, C. E. (L.)
Springfield—Gerrard, H. C. (L.)
Stoddard, M. J. (M.)
Waltham—Hamburg, M. M. (L.)

MICHIGAN

Adrian—Bland, J. P. (C.)
Ann Arbor—Cron, R. S. (L.)
Elliott, J. A. (L.)
Birch Run—McCrory, H. B. (L.)
Detroit—Hawkins, J. W. (L.)
Lynch, E. J. (L.)
Young, R. K. (C.)
Grosse Pointe—Griswold, D. M. (L.)
Pontiac—Butler, S. A. (C.)
Saginaw—DeFoe, W. A. (C.)
Sault Ste. Marie—Yale, I. V. (L.)

MINNESOTA

Delano—Phillips, A. E. (L.)
Jordan—Atkinson, N. E. (L.)
Le Roy—Warren, C. L. (C.)
Minneapolis—Van de Erve, H. (L.)
Rochester—Doggett, B. A. (L.)
Robinson, S. (M.)
Taylor, J. R. (L.)
St. Paul—Bock, R. A. (L.)
Dittman, G. C. (L.)
Finberg, J. (L.)
Larson, M. L. (L.)
Molander, H. A. (L.)
Woolson, C. (L.)
Wabash—Replogle, W. H. (C.)

MISSISSIPPI

Hattiesburg—Champenois, F. (L.)
New Augusta—Robinson, B. T. (C.)
Vicksburg—Howard, E. F. (C.)

MISSOURI

Appleton City—Rawlins, E. V. H. (C.)
Benton—Haw, U. P. (C.)
Brookfield—Brownfield, S. T. (C.)
Fore, T. P. (C.)
Standly, E. D. (C.)
Brownington—Strieby, U. G. (L.)
Cardwell—Birchett, J. G. (C.)
Carterville—O'Kelley, F. M. (C.)
Centertown—Francis, H. H. (L.)
Farmington—Smith, O. A. (C.)
Gray Bridge—Decker, A. J. (L.)
Hurdland—Wilsey, A. R. (L.)
Kansas City—Clark, E. H. (C.)
Clendining, L. (M.)
Crooks, O. R. (L.)
Czarlinsky, H. (L.)
Farr, F. F. (L.)
Lake, N. E. (L.)
Lane, H. H. (C.)
Sherman, C. A. (L.)
Vanorden, H. F. (L.)
Koenig—Hancks, J. A. (L.)
Koshkonong—Gullic, J. F. (L.)
Lathrop—Weir, L. R. (L.)
Maysville—Clark, W. J. (C.)
Moberly—Grote, O. A. (L.)
Shrader, E. W. (C.)
Moselle—Lowder, O. H. (L.)
Mountain Grove—Frame, H. G. (C.)
Pacific—McNay, A. L. (C.)
Paynesville—Guy, R. J. (L.)
Pierce City—Clark, H. R. (C.)
Reeds Spring—Shumate, L. S. (L.)
Rockport—Chamberlain, O. M. (L.)
Sedalia—Barnum, K. R. (L.)
St. Joseph—Cook, E. P. (C.)
Proud, W. C. (C.)
Spencer, F. H. (C.)
St. Louis—Abrams, S. F. (L.)
Doll, J. E. (L.)
Guhman, C. N. (C.)
Hall, K. H. (L.)
Hayman, A. T. (L.)
Heid, L. L. (L.)
Hyland, R. F. (L.)
Koenig, G. H. (L.)
Loew, E. C. (C.)
Lotz, J. A. (C.)
Martin, C. P. (L.)
Niedringhaus, R. E. (C.)
Pope, C. H. (C.)
Proetz, A. N. (C.)
Reider, C. R. (L.)
Salisbury, W. J. (L.)
Schuck, A. (C.)
Turner, R. (L.)
Upshaw, O. T. (L.)
Wezeau, S. (L.)
Vandusen—Traubitz, A. (L.)
Wellsville—Cox, S. S. (L.)
West Eminence—Henson, L. L. (L.)
Zahma—Back, G. C. (L.)

MONTANA

Big Sandy—Juckem, G. J. (C.)
Great Falls—Lord, B. E. (L.)
MacBurney, L. R. (L.)
Porter, T. M. (C.)
Kalispell—Creusel, C. N. G. (C.)
Red Lodge—Shore, W. B. (L.)

NEBRASKA

Aurora—Riley, W. H. (L.)
Creighton—Burrell, R. H. (C.)
David City—Rich, R. G. (C.)
Dodge—Patterson, F. B. (L.)
Havelock—Williams, G. E. (C.)
Lincoln—Emerson, C. (L.)
Omaha—Lurvey, H. D. (L.)
McGrew, W. R. (C.)
Simpson, J. E. (C.)
Polk—Leibee, J. R. (L.)
Red Cloud—Creighton, E. A. (C.)
Stockman, J. W. (L.)
Wisner—Morse, R. H. (L.)

NEVADA

Paradise Valley—Knorr, L. R. (M.)

NEW HAMPSHIRE

Milton—Buckley, J. J. (L.)

NEW JERSEY

Chatham—Pollard, J. E. (C.)
Dover—Costello, W. F. (L.)
Dunellin—Platt, T. H. (L.)
Jersey City—Nelson, A. (C.)
Willis, J., Jr. (L.)
Newark—Kelley, J. W. (C.)
New Brunswick—Gruessner, A. (C.)
Paterson—Cogan, H. (C.)
Maclay, J. A. (C.)
Princeton—Hickman, W. A. (C.)
Ridgewood—Keating, W. F. (C.)
Summit—Bowles, H. H. (L.)
West Orange—Bortone, F. (L.)

NEW MEXICO

Plain—Lancaster, W. M. (L.)

NEW YORK

Albany—Cox, J. A. (C.)
Brooklyn—Berkourtz, H. (L.)
Blair, H. T. (L.)
Blum, S. G. (L.)
Danzer, S. (L.)
Buffalo—Hammond, H. J. (L.)
Canastota—Germer, H. G. (C.)
Central Islip—Barnhardt, W. N. (C.)
Delevan—Fisher, M. E. (L.)
Jamaica—Lieberman, W. (L.)
Lafargeville—Tinkers, A. L. (C.)
New York—Adams, L. (C.)
Clifton, T. A. (L.)
Deming, C. K. (L.)
Edwart, D. G. (L.)
Fortuine, S. T. (L.)
Freeman, A. C. (L.)
Gover, R. W. (C.)
Haberman, J. V. (C.)
Halpern, T. (L.)
MacDonald, J., Jr., (M.)
Maloney, E. H. (L.C.)
New York—Manley, H. D. (L.)
Sonkin, M. (L.)
Telfair, J. H. (M.)
Trask, J. D. (L.)
Weingart, A. J. (L.)
Oneonta—Marsh, C. R. (C.)
Oriskany—Allen, B. P. (C.)
Owasso—Ford, N. B. (C.)
Rochester—McPherson, W. A. (L.)
Syracuse—Champlin, P. M. (L.)
Wappingers Falls—O'Brien, F. S. (L.)
West Point—Phelps, K. A. (C.)

NORTH CAROLINA

Elizabeth City—Jacocks, W. P. (C.)
Kenansville—Farrier, J. W. (C.)

NORTH DAKOTA

Carpio—Fisk, D. A. (C.)
Carrington—McClusky, O. W. (C.)
Kulm—Brenckle, J. F. (L.)
Williston—Dochterman, L. B. (C.)

OHIO

Amesville—Flinn, G. E. (L.)
Amsterdam—Gibson, F. S. (M.)
Archbold—Murbach, E. A. (C.)
Barberton—Livermore, F. B. (C.)
Stall, A. H. (C.)
Barnesville—McCartney, J. T. (C.)
Centerburg—McLaughlin, R. B. (C.)
Cincinnati—Freiberg, A. H. (M.)
Columbus—Wilcox, S. S. (C.)
Coshocton—McClain, J. (C.)
Dayton—Larkin, J. K. (L.)
Hamilton—Griffith, W. E. (C.)
Iberia—Virtus, D. B. (C.)
Lima—Berry, J. H. (L.)
McCutchenville—Heaton, J. J. (L.)
[illegible] (C.)
[illegible] (C.)
[illegible] O. R. (L.)
The Plains—Nelson, L. D. (L.)
Toledo—Rees, O. C. (C.)
Wellston—Parker, W. H. (C.)

OKLAHOMA

Agra—Robinson, F. P. (L.)
Berlin—Clohessy, T. T. (L.)
Bradley—Barry, W. R. (C.)
Broken Arrow—Franklin, O. (L.)
Davis—Luster, J. C. (L.)
Dustin—Parker, C. E. (L.)
Garland—Davis, J. (L.)
Henryetta—Breese, H. E. (C.)
Holdenville—Howell, H. A. (L.)
Hollis—McFadin, J. S. (L.)
Lindsay—Matheny, J. C. (L.)
Manitou—Howell, C. A. (L.)
Marlow—Mavity, A. R. (L.)
Muldrow—Breedlove, J. C. (L.)
Oklahoma City—Alford, J. M. (C.)
Pilcher—Wharton, J. T. (L.)
Ponca City—Arrendell, C. W. (L.)
Skistock—Phillips, W. G. (L.)
Tecumseh—Fortson, J. L. (L.)

OREGON

Albany—Riggs, G. E. (L.)
Bend—Wilson, I. B. (L.)
Eugene—Darrow, G. E. (M.)
Juntura—Hedges, W. E. (L.)
La Grande—Hall, M. K. (C.)
Oatskansie—Wooden, J. L. (L.)
Pendleton—McKelway, J. I. (L.)
Portland—Blachley, A. T. (L.)
Seaman, C. (C.)
Yamhill—Craver, R. B. (L.)

PENNSYLVANIA

Aspinville—Mitchell, L. T. (C.)
Avondale—Magraw, G. T. (C.)
Berwyn—Richards, F. L. (C.)
Boyers—Sisney, T. L. (L.)
Carlisle—Whistler, E. L. (L.)
Easton—Cope, W. F. (C.)
Ellentown—Brown, B. (C.)
Erie—Bedmarkiewicz, I. A. (C.)
Luke, R. H. (L.)
Indiana—Weitzel, W. F. (L.)
Leechburg—Parks, C. C. (L.)
McKees Rocks—Lafferty, J. A. (L.)
Oxford—Collins, A. A. (L.)
Philadelphia—Bridgett, F. A. (C.)
Day, E. O. (L.)
Du Bell, A. K. (L.)
Hinkle, W. M. (C.)
Smith, R. P. (C.)
Spaeth, L. A. (M.)
Stiles, C. M. (C.)
Swartley, W. B. (L.)
Pittsburgh—Keller, S. H. (L.)
McConnell, W. (C.)
Sanes, K. I. (C.)
Yarnall, A. H. (L.)
Reading—Newcomet, H. I. (L.)
Seylers, E. Y. (L.)
[illegible] H. (C.)
[illegible] C. (C.)
[illegible] E. M. (L.)

RHODE ISLAND

Pawtucket—Jenks, F. R. (C.)
Providence—Lincoln, W. C. (C.)
Whitmarsh, R. H. (C.)

SOUTH CAROLINA

Abbeville—Hill, J. C. (L.)
York—Barron, J. I. (C.)

SOUTH DAKOTA

Armour—Wilson, R. D. (C.)
Frankfort—Guaffroy, H. A. (L.)
[illegible] A. (C.)
[illegible] (L.)
[illegible] R. G. (L.)
[illegible] H. C. (M.)
Waubay—Hawkins, A. P. (L.)

TENNESSEE

Beech Grove—Wysong, H. C. (L.)
Franklin—Rose, J. H. (M.)
Knoxville—Rogers, O. W. (L.)
Madison—Swift, C. L. (L.)
McKenzie—Alexander, H. L. (C.)
Memphis—Lewis, E. (L.)

TEXAS

Ballinger—Hale, F. M. (C.)
Beaumont—Garth, J. W. (C.)
Harlan, H. D. (L.)
Benford—Payne, C. M. (L.)
Byers—Shepherd, F. D. (C.)
Canadian—Teas, F. D. (C.)
Dallas—Compere, D. E. (L.)
Dawson—Steen, C. T. (L.)
Dayton—Spear, J. D. (L.)
Denton—Rowe, H. (L.)
Doucette—Bevil, H. G. (L.)
Fort Worth—Wilson, S. J. (C.)
Godley—Yater, T. F. (L.)
Grapeland—Hill, C. C. (L.)
Kennedy, S. (L.)
Houston—White, A. E. (C.)
Overton—Barton, W. P. (C.)
Port Arthur—Bledsoe, M. F. (C.)
Post—Castleberry, G. G. (L.)
[illegible] M. (L.)
[illegible] (L.)
[illegible] W. F. (L.)
Walburg—Whigham, J. G. (L.)

UTAH

Huntington—Hill, T. C. (L.)
Provo—Hasler, W. T. (L.)
Salt Lake City—Ulman, S. J. (L.)
Wheeler, T. H. (C.)

VERMONT

East Arlington—Gray, S. K. [illegible]
Hardwick—George, B. D. (L.)

VIRGINIA

Coeburn—Culbertson, W. R. (L.)
Lovettsville—Foley, C. E. (L.)
University—Bardin, J. C. (L.)

WASHINGTON

Montesano—Brachvogel, M. W. (C.)
Spokane—Collins, I. S. (C.)
Tacoma—Hunter, C. D. (L.)

WEST VIRGINIA

Parkersburg—Harris, T. L. (L.)

WISCONSIN

Beloit—Burger, H. E. (L.)
Cambridge—Bilstad, G. E. (L.)
Fennimore—Bailey, M. A. (C.)
Fond du Lac—McCabe, P. G. (L.)
Minahan, P. R. (C.)
Fox Lake—Rosenheimer, A. M. (L.)
Granton—Rath, R. R. (L.)
Horicon—Simon, L. J. (L.)
Madison—Smith, K. W. (C.)
Manitowoc—MacCollum, C. I. (L.)
Milwaukee—Eisenberg, J. J. (L.)
Fox, P. A. (C.)
Nahim, H. L. (L.)
Ross, P. M. (L.)
Westhofen, R. C. (L.)
Tigerton—Gates, A. J. (C.)
Wausau—Ladwig, W. A. (C.)

WYOMING

Crosby—Hamilton, T. F. (L.)
Dietz—Schunk, E. R. (L.)
Evanston—Thompson, A. P. (L.)
Lovell—Torjuson, T. B. (L.)
Sheridan—Denison, E. G. (C.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Fort Oglethorpe, from Camp Sheridan, Capt. E. M. PRINCE, Birmingham.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Richmond, Capt. A. W. RALLS, Gadsden.

The following order has been revoked: *To Fort McPherson, Ga., from* Fort Oglethorpe, Lieut. E. O'CONNELL, Birmingham.

Arkansas

To Camp MacArthur, Texas, as camp sanitary inspector, from Camp Pike, Major W. H. ABINGTON, Beebe.

To report to the commanding general, Central Department, from Fort Riley, J. F. HALBROOK, *Center Ridge.*

California

To Army Medical School for *instruction, from Fort Oglethorpe,* Capt. J. M. WASTO, San Francisco.

To Camp Kearney, Calif., as assistant *to* camp surgeon, from San Francisco, Major A. C. MILLER.

To Denver, Colo., from Camp MacArthur, Capt. C. E. IDE, Redlands.

To Eastview, N. Y., from Camp Pike, Lieut. L. O. W. MOORE, Alameda; from Rockefeller Institute, Lieut. M. C. CHENEY, Berkeley.

To Rockefeller Institute for instruction in the treatment of infected wounds, and *on completion to Williamsbridge, N. Y.,* from Camp Pike, Capt. F. C. PACHE, Ventura.

To Walter Reed General Hospital, D. C., from New Haven, Major W. E. CHAMBERS, Oakland.

To Washington, D. C., St. Elizabeth's Hospital, from Ann Arbor, Lieut. A. SMITH, San Jose.

To Whipple Barracks, Ariz., from Fort Riley, Capt. J. H. MEYER, San Bernardino.

Canal Zone

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. M. JOSEPH, Ancon.

Colorado

To Denver, Colo., from Mineola, Capt. M. D. BROWN, *Craig.*

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Williamsbridge, N. Y., from* Camp Pike, Lieut. R. R. TAYLOR, Pueblo.

Connecticut

To Azalea, N. C., from Camp Wadsworth, Capt. E. H. METCALF, Rockville.

To Dallas, Texas, Love Field, from Waco, Lieut. J. D. RUSSO, New Haven.

To *Eastview, N. Y.,* from Rockefeller Institute, Lieut. W. A. MONAGHAN, Hartford.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. B. F. DONOHUE, Forestville.

To Hoboken, N. J., from Camp A. A. Humphreys, Capt. R. M. YERGASON, Hartford; from Camp Dix, Lieut. H. M. HURWITZ, Hartford.

The following order has been revoked: *To Army Medical School,* from Fort Oglethorpe, Capt. T. F. BEVANS, Waterbury.

District of Columbia

To Camp Greene, N. C., base hospital, *from* New Haven, Lieut. A. L. GUERRA, Washington.

To Camp Lewis, Wash., from the Surgeon-*General's Office, Major* C. R. CASTLEN.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. H. C. COOK, Washington.

To Hot Springs, N. C., from Fort Oglethorpe, Lieut. F. T. CHAMBERLIN, Washington.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Fort Riley,* base hospital, from Fort Oglethorpe, Major J. B. PIGGOTT, Washington.

Florida

To Camp Meade, Md., from Fort Oglethorpe, Lieut. R. G. NELSON, Tampa.

To Camp Meigs, D. C., from Fort Oglethorpe, Lieut. W. L. NUTTER, Lake Worth.

To Houston, Texas, Ellington *Field, from* Waco, Lieut. M. A. LISCHKOFF, Pensacola.

Georgia

To Biltmore, N. C., from Fort Oglethorpe, Capt. J. T. *FLOYD,* Atlanta.

To Camp Abraham Eustis, Va., as camp surgeon, *from Fort Oglethorpe,* Lieut.-Col. T. J. FLYNN.

To Camp Zachary Taylor, Ky., as camp surgeon, *from Fort Oglethorpe,* Col. J. C. GREGORY.

To Fort McPherson, Ga., from Fort Oglethorpe, *Lieut.* C. H. DICKENS, Grayson.

To Newport News, Va., from Fort Oglethorpe, Lieut.-Col. H. H. BAILY.

To Plattsburg Barracks, N. Y., from Harrisburg, Lieut. M. D. CLAYTON, Milledgeville.

To Washington, D. C., Surgeon-General's *Office,* from Fort Oglethorpe, *Col.* R. BROOKE.

Idaho

To Camp Lewis, Wash., base hospital, from Colonia, Lieut. G. H. KENNETT, Kellogg.

Illinois

To Azalea, N. C., from Camp Wadsworth, Lieut. F. H. GBRCZYK, Joliet.

To Camp Dix, N. J., from Camp Jackson, *Lieut.* W. S. MIX, Beardstown.

To Camp Grant, Ill., from Camp Pike, Lieut. H. B. CULVER, Chicago. Base hospital, from Fort Oglethorpe, Lieut. E. E. BULLARD, Girard; from New Haven, Capt. C. WAKEFORD, Morris City.

To Camp Jackson, S. C., base hospital, from New Haven, Lieut. L. J. TINT, Chicago.

To [illegible] *Ala.,* base hospital, from Camp Custer, Capt. D. N. [illegible]

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. B. L. VILNA, Cicero; H. W. ACKEMANN, Rockford.

To Chicago, Ill., from Camp Gordon, Lieut. C. M. DeBECK, Chicago; from New York, Major F. S. O'HARA, Springfield.

To Eastview, N. Y., from Camp Sevier, Lieut. E. ANDREWS, Chicago.

To Everman, Texas, Barron Field, from San Antonio, Capt. C. P. CHAFFIN, Chicago.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. R. LAVIERI, Chicago.

To Fort Sheridan, Ill., from Camp Wadsworth, Capt. J. W. VANDERSLICE, Oak Park; from Fort Oglethorpe, Lieut. A. L. REAMS, Chicago; J. H. WEDIG, Granite City.

To New Cumberland, Pa., from Fort Riley, Lieut. M. L. HARTMAN, Garden Prairie.

To Riverside, Calif., March Field, *from* Lake Charles, Capt. G. C. OTRICH, Belleville.

To Rochester, Minn., Mayo Clinic, *for instruction,* and on completion to his proper station, from Fort Sheridan, Capt. J. B. MOORE, Ziegler; Lieut. B. F. DAVIS, Chicago.

To Toledo, Ohio, from Fort Hancock, Lieut. L. B. CLINTON, Chicago.

To Walter Reed General Hospital, D. C., for instruction, from Fort [illegible] GALLAGHER, Lieut. D. H. HOWELL, Chicago.

[illegible]s have been revoked: *To Army Medical School,* [illegible] Lieut. W. A. GROSS, Chicago. *To Fort McHenry, Md.,* from Fort Oglethorpe, Lieut. V. M. LA MARRE, Chicago.

Indiana

To Detroit, from Fort Oglethorpe, Capt. W. H. BAKER, South Bend; from Rockefeller Institute, Capt. J. P. Seale, *Fairmount.*

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Capt. B. M. HUTCHINGS, *Terre Haute.*

To Fort McHenry, Md., from Camp McClellan, Capt. H. A. VAN OSDOL, Indianapolis; from Fort Oglethorpe, Capt. A. A. THOMAS, *Linton; from* Rockefeller Institute, *Lieut.* E. L. SCHAIBLE, *Gary.*

To Fort Sam Houston, Texas, base hospital, from Colonia, Lieut. L. C. SAMMONS, Shelbyville.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. J. H. COOK, Terre Haute.

To Fort Sill, Okla., Post Field, from Lonoke, Ark., Capt. D. D. JOHNSTON, Fort *Wayne.*

To New Cumberland, Pa., from Fort Riley, Lieut. S. M. COMPTON, Forest.

To Pittsburgh, Pa., from Fort Oglethorpe, Lieuts. C. BAKER, Evansville; L. R. ELLARS, Peru.

To Walter Reed General Hospital, D. C., for instruction, from Fort Oglethorpe, Lieut. G. C. PROCTOR, Muncie.

The following order has been revoked: *To Camp Custer, Mich.,* from Fort Oglethorpe, Capt. C. C. FUNK, New Albany.

Iowa

To Eastview, N. Y., from Camp Sevier, Lieut. C. E. DAKIN, Mason City.

To Fort Des Moines, Iowa, from Rockefeller Institute, Lieut. W. H. HOMBACH, Remsen.

To Fort McHenry, Md., for instruction, from Fort Oglethorpe, Capt. M. B. DUNNING, Conway.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. C. D. MERCER, *West Union.*

To Pittsburgh, Pa., from Fort Oglethorpe, Lieut. C. BAKER, Colo.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort Des Moines, Capt. F. R. HOLBROOK, Des Moines.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort McHenry, Md., from Camp Dodge,* Capt. J. E. SWANSON, Sioux City.

Kansas

To Camp Custer, Mich., base hospital, from New Haven, Capt. H. N. MOSES, Salina.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. L. F. BARNEY, Kansas City.

To Fort Riley, base hospital, from Rockefeller Institute, Lieut. R. W. VAN DEVENTER, Wellington.

The following order has been revoked: *To Camp Kearney, Calif.,* base hospital, from Fort Oglethorpe, Lieut. D. L. MORGAN, Emporia.

Kentucky

To Camp Gordon, Ga., base hospital, from Walter Reed General Hospital, Lieut. G. L. THOMPSON, Lovelaceville.

To Camp Zachary Taylor, Ky., as assistant *to camp surgeon,* from Camp Henry Knox, *Major* F. H. MILLS.

To New Cumberland, Pa., from Fort Riley, Lieut. O. F. HUME, Mackville.

To West Point, N. Y., from West Point, Ky., *Major* A. G. WILDE.

The following order has been revoked: *To Colonia, N. J.,* from Fort Oglethorpe, Capt. W. A. BUSH, Winchester.

Maine

To Fort Sill, Okla., Post Field, from Lonoke, Ark., Capt. S. E. FISHER, *Portland.*

Maryland

To Camp Meade, Md., Major E. B. FRIEDENWALD, Baltimore. Base hospital, from Camp Lee, Major N. M. OWENSBY, *Baltimore.*

To Washington, D. C., Surgeon-General's Office, Lieut.-Col. W. S. *BAER, Baltimore.*

Massachusetts

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. N. J. KING, Boston.

To Camp Grant, Ill., to examine the command for cardiovascular diseases, from Camp Devens, Capt. H. K. BOUTWELL, Brookline.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. D. A. GARBELNICK, Haverhill.

To Cape May, N. J., from Walter Reed General Hospital, Lieut. J. B. A. JOHNSON, Lowell.

To Colonia, N. J., from Camp Dix, Lieut. E. Y. KAU, *Boston.*

To Dallas, Texas, Love Field and St. Paul's Sanatorium, from Mineola, Lieut. T. F. CAPELES, *Haverhill.*

To Eastview, N. Y., from Camp Sevier, Capt. G. A. MOORE, *Brockton.*

To Fort McHenry, Md., from Fort Oglethorpe, Capt. J. D. CLARK, Boston.

To Fort Snelling, Minn., from Walter Reed General Hospital, Capt. F. A. BARDWELL, Boston.

To Plattsburg Barracks, N. Y., from Carlisle, Capt. R. A. GREENE, Palmer.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort McHenry, Lieut. A. R. GARDNER, Lowell.

To Walter Reed General Hospital, D. C., for instruction, from Fort Oglethorpe, Lieut. J. D. CHRISTIE, Littleton.

To Washington, D. C., Surgeon-General's Office, from Newport News, Major Z. B. ADAMS, Brookline.

Michigan

To Chicago, from Fort Oglethorpe, Lieut. T. H. E. BEST, Detroit.

To Fort Sheridan, Ill., from New York City, Lieut. H. W. WILEY, South Haven.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Detroit, Lieut. J. W. WARREN, Detroit; from Fort Des Moines, Lieut. D. H. McRAE, Mount Pleasant; from Fort Sheridan, Capt. C. GEORG, Jr., Ann Arbor.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Williamsbridge, N. Y.,* from Camp Pike, Capt. J. A. KIMZEY, Detroit.

To Walter Reed General Hospital, D. C., for instruction, from Columbus Barracks, Lieut. E. J. AGNELLY, Detroit; from Fort Oglethorpe, Lieuts. F. W. BURNHAM, S. H. CRAIG, Detroit.

To West Baden, Ind., from Jeffersonville, Capt. C. B. GARDNER, Alma.

The following order has been revoked: *To Camp Kearney, Calif.,* base hospital, from Camp MacArthur, Capt. J. O. PARKER, Owosso.

Minnesota

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. L. R. LIMA, Montevido.

To Fort Sill, Okla., Post Field, from Lake Charles, Lieut. P. B. GILLESPIE, Minneapolis.

To Fort Snelling, Minn., from Fort Oglethorpe, Capt. W. W. HIGGS, Park Rapids; Lieut. K. A. DANIELSON, Litchfield; from Rockefeller Institute, Lieut. L. BAKER, Minneapolis.

To Riverside, Calif., March Field, from Berkeley, Lieut. R. A. JOHNSON, Minneapolis.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. C. R. SANBORN, Bemidji.

To the retired list, from the Surgeon-General's Office, Major J. D. YOST, Duluth.

Mississippi

To Walter Reed General Hospital, D. C., for instruction, from Fort Oglethorpe, Capt. J. T. HOSEY, Enterprise.

To West Baden, Ind., from Fort Oglethorpe, Capt. G. A. SEYBOLD, Jackson.

Missouri

To Camp Beauregard, La., from Camp Hancock, Capt. D. E. SCHMALHORST, St. Louis.

To Camp Forrest, Ga., as orthopedic surgeon, from Fort Oglethorpe, Capt. W. C. VERNON, Kansas City.

To Everman, Texas, Barron Field, from Dallas, Lieut. J. M. POTTS, Springfield.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. H. B. DAVIS, Kansas City.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, N. Y.,* base hospital, from Camp Pike, Lieut. M. PITZMAN, St. Louis.

To Williamsbridge, N. Y., from Camp Bowie, Capt. W. B. YOUNG, St. Louis.

The following order has been revoked: *To Camp Morrison, Va.,* from Camp Zachary Taylor, Lieut. J. C. PEDEN, St. Louis.

Montana

To Fort Bayard, N. M., from Fort Riley, Lieut. F. A. WOODWARD, Great Falls.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Long Beach, N. Y.,* from Camp Grant, Lieut. G. F. TURMAN, Missoula.

Nebraska

To Camp Dix, N. J., from Camp Zachary Taylor, Capt. W. E. M. DEVERS, Cowles.

To Camp Polk, N. C., from Camp Wadsworth, Capt. E. M. BARNES, Omaha.

To Denver, Colo., from Camp MacArthur, Capt. L. S. B. ROBINSON, Lincoln.

To Fort Des Moines and *Camp Dodge, Iowa,* base hospitals, from Newport News, Lieut. W. E. WOLCOTT, Omaha.

To Riverside, Calif., March Field, from Berkeley, Lieut. J. R. KLEYLA, Omaha.

New Hampshire

To Walter Reed General Hospital, D. C., for instruction, from Fort Oglethorpe, Capt. B. W. CARR, Pittsfield.

New Jersey

To Azalea, N. C., from New York, Major J. J. BRODERICK, Jersey City.

To Camp Dix, N. J., base hospital, from New Haven, Lieut. H. E. BURBANK, Belleville.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. W. A. RULLMAN, Red Bank.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieuts. M. S. FRANK, Bayonne; G. J. V. van SCHOTT, Passaic.

To Detroit, Mich., from Richmond, Lieut. I. S. INGBER, Secaucus.

To Fort Bayard, N. M., from Fort Monroe, Lieut. H. F. WESTCOTT, Bridgeton.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. C. P. De FUCCIO, Jersey City.

To Hoboken, N. J., from Camp Wheeler, Capt. F. A. FINN, Jersey City; from New Haven, Lieut. H. A. SCHEPPACH, Newark.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Lakewood, Lieut. H. R. van NESS, Newark.

New Mexico

To Azalea, N. C., from Camp Wadsworth, Lieut. S. M. EDMONSON, Clayton.

New York

To Army Medical School, from Fort Oglethorpe, Capt. T. L. HEIN, New York; Lieut. C. L. WAKEMAN, Andes. For instruction, from Fort Oglethorpe, Capt. C. C. RANSON, Schenectady; Lieut. E. B. FARLEY, New York.

To Camp McClellan, Ala., base hospital, from Camp Custer, Capt. S. ERDMAN, New York.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Capt. H. R. WILLSE, Westfield; Lieut. R. G. HAYS, Brooklyn; from Walter Reed General Hospital, Capt. C. WOLF, New York.

To Camp Meigs, D. C., from Washington, Lieut. C. W. CULVER, Lowville.

To Camp Pike, Ark., base hospital, from Camp MacArthur, Lieut. G. FREIMAN, Brooklyn.

To Camp Polk, N. C., from Camp Zachary Taylor, Lieut. H. ACKERMAN, New York.

To Camp Sherman, Ohio, base hospital, from Fort Sill, Capt. L. H. NAHUM, New York.

To Camp Upton, N. Y., as tuberculosis examiner, from Camp Jackson, Lieut. M. GREENWALD, New York; from Garden City, Lieut. G. G. HATZEL, New York. Base hospital, from New Haven, Lieut. M. M. NEMSER, New York.

To Eastview, N. Y., from Fort McPherson, Lieut.-Col. C. N. B. CAMAC, New York; from Fort Oglethorpe, Capt. E. BRUNOR, New York; from Rockefeller Institute, Lieuts. W. E. ZIELINSKI, Buffalo; A. HOFHEIMER, New York.

To Fort Des Moines, Iowa, from Camp Dix, Lieut. J. L. LINN, Brooklyn; from Cape May, Capt. J. KETTERLE, Brooklyn.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. J. J. CLARK, Olean; Lieut. F. A. BIEN, New York.

To Fort Porter, N. Y., from Rockefeller Institute, Lieut. L. J. STRONG, Buffalo.

To Governors Island, N. Y., from New York, Capt. J. R. HARDING, Elmira.

To Hoboken, N. J., from Camp Lee, Capt. G. A. POWERS, Brooklyn; from New Haven, Lieuts. C. H. HOCHMAN, New York; W. I. WALSH, Troy.

To Middletown, Pa., from Fort Oglethorpe, Lieut. H. H. SHIRAS, New York.

To Mineola, N. Y., Hazelhurst Field, from New York, Major L. T. LeWALD, New York.

To Newport News, Va., from Madison Barracks, Capt. A. E. SOPER, Wards Island.

To Otisville, N. Y., from Camp Jackson, Capt. S. L. CASH, New York.

To Rochester, Minn., Mayo Clinic, for instruction, from Rockefeller Institute, Major L. J. REGAN.

To Walter Reed General Hospital, from Boston, Lieut. F. W. SEWARD, Jr., Goshen; from Camp Meade, Capt. W. J. HIGHMAN, New York. For instruction, from Fort Oglethorpe, Capt. J. R. HUNTER, New York.

To Washington, D. C., St. Elizabeth's Hospital, from New York, Capt. K. A. ENLIND, New York. Surgeon-General's Office, from Camp Abraham Eustis, Major A. H. PARSONS, Great Neck; from Camp Sevier, Capt. J. B. ZABRISKIE, Brooklyn.

To Williamsbridge, N. Y., from Fort Oglethorpe, Major G. WALTER, New York.

The following orders have been revoked: *To Camp Meade, Md,* from Fort Oglethorpe, Capt. C. F. POTTER, Syracuse. *To Fort Snelling, Minn.,* from Fort Oglethorpe, Lieut. R. C. MOONEY, Gloversville. *To Pittsburgh, Pa.,* from Fort Oglethorpe, Capt. S. T. HUBBARD, New York.

North Dakota

To Fort Des Moines, Iowa, from Camp Beauregard, Lieut. J. F. HANNA, Fargo.

Ohio

To Camp Dix, N. J., as orthopedic surgeon, from Fort McHenry, Capt. A. M. STEINFELD, Columbus.

To Camp Dodge, Iowa, base hospital, from Camp Sherman, Lieut. C. G. McPHERSON, Xenia.

To Denver, Colo., from Fort Oglethorpe, Lieut. C. L. RUGGLES, Cleveland.

To Eastview, N. Y., from Fort Oglethorpe, Capt. F. M. BURNS, Cincinnati.

To Newport News, Va., from Fort Oglethorpe, Lieut. D. P. PHILIPS, Jr., Columbus.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Colonia, N. J.,* from Camp Zachary Taylor, Lieut. O. BEHRMAN, Cincinnati. On completion *to Eastview, N. Y.,* from Camp Sherman, Capt. J. G. BLOWER, Akron.

The following order has been revoked: *To Lakewood, N. J.,* from Fort Oglethorpe, Capt. A. B. LIPPERT, Cincinati.

Oklahoma

To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. J. J. BARBER, Laverne.

To Fort Bayard, N. M., from Fort Oglethorpe, Capt. J. E. HUGHES, Shawnee.

To Fort Des Moines, Iowa, from Fort Riley, Lieut. B. W. RUSSELL, Strong City.

Pennsylvania

To Army Medical School, from Fort Oglethorpe, Lieut. H. P. MEYERS, Confluence. For instruction, from Fort Oglethorpe, Lieut. C. P. LEININGER, Pittsburgh.

To Camp Dodge, Iowa, base hospital, from Camp Sherman, Capt. T. A. STEELE, McKeesport.

To Camp Kearney, Calif., as camp surgeon, from Camp Crane, Lieut.-Col. H. M. SNYDER.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Capts. C. C. RINARD, Homestead; H. M. STEWART, Johnstown.

To Camp Meigs, D. C., from Washington, Lieut. S. B. THOMAS, Waynesboro.

To Camp Pike, Ark., base hospital, from Fort Oglethorpe, Lieut. A. I. SLAGLE, Vandergrift.

To Camp Polk, N. C., from Fort Totten, Major A. W. YALE, Philadelphia.

To Camp Sherman, Ohio, to examine the troops for cardiovascular diseases, from Camp Grant, Lieut. T. G. JENNY, Pittsburgh.

To Camp Upton, N. Y., as tuberculosis examiner, from Garden City, Lieut. W. C. JOHNSON, Philadelphia.

To Eastview, N. Y., from Fort Oglethorpe, Lieut. J. C. DEAL, Philadelphia.

To Fort Des Moines, Iowa, from Rockefeller Institute, Lieut. L. W. WRIGHT, Williamsport.

To Fort McPherson, Ga., from Fort McHenry, Major E. H. GOODMAN, Philadelphia; from Fort Oglethorpe, Lieuts. W. S. BELL, Greensburg; W. P. DODDS, Pittsburgh.

To Fort Leavenworth, Kan., from Camp Pike, Lieut. W. H. BUTZ, Allentown.

To Hoboken, N. J., from Camp Gordon, Lieut. G. W. MELLON, Woodlawn; from Fort Niagara, Major S. M. HUFF, Bellefonte.

To Madison Barracks, N. Y., from Rockefeller Institute, Lieut. J. A. COEN, Bristoria.

To Pittsburgh, Pa., from Camp Gordon, Lieut. R. A. WOLFF, New Kensington.

To Riverside, Calif., March Field, from Berkeley, Lieut. R. T. M. DONNELLY, Philadelphia.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Fort Benjamin Harrison, Capt. C. A. HILL, Pittsburgh; from Fort Des Moines, Capt. C. B. LUFBURROW, Philadelphia.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. W. C. SHAW, Ridgeway.

The following order has been revoked: *To Fort McHenry, Md.*, from Fort Oglethorpe, Capt. C. B. WORDEN, Philadelphia.

South Carolina

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. S. ZIMMERMAN, Spartanburg.

South Dakota

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort McHenry, Md.*, from Camp Dodge, Capt. W. O. LEACH, Huron.

Tennessee

To Camp Sheridan, Ala., base hospital, from Rockefeller Institute, Lieut. C. L. DAVIDSON, Lexington.

To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. C. W. ROBINSON, Memphis.

To Dallas, Texas, Love Field, from Camp Dick, Major V. K. EARTHMAN, Murfreesboro.

To Fort McHenry, Md., for instruction, from Fort Oglethorpe, Lieut. C. F. THOMASON, Nashville.

To Fort McPherson, Ga., from Camp Meade, Lieut. E. H. DELAY, Chattanooga; from Fort Oglethorpe, Lieut. J. F. GALLAGHER, Nashville.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Detroit, Capt. E. D. MITCHELL, Memphis.

The following orders have been revoked: *To Camp Joseph E. Johnston, Fla.*, base hospital, from Fort Oglethorpe, Lieut. H. O. FLETCHER, Chattanooga. *To Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Lieut. W. STEELE, Chattanooga.

Texas

To Camp Kearney, Calif., as division surgeon, from Camp Travis, Lieut.-Col. H. P. CARTER.

To Camp Travis, Texas, base hospital, from Rockefeller Institute, Capt. H. B. KINGSBURY, Fort Worth.

To Detroit, Mich., from New Haven, Lieut. O. T. KIRKEY, Galveston.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. J. W. MACUNE, Davilla.

To Fort Sam Houston, Texas, base hospital, from Fort Riley, Lieut. R. T. TRAVIS, Dallas.

The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieut. H. T. SMITH, Dallas. *To Camp Jackson, S. C.*, from Atlanta, Capt. E. C. FOSTER, Whitt.

Utah

To Camp Lewis, Wash., base hospital, from Rockefeller Institute, Lieut. P. S. HAGEMAN, Bingham Canon.

To New Cumberland, Pa., from Fort Riley, Lieut. J. C. HARDIE, Garfield.

Vermont

To Boston, Mass., for instruction, from Fort Oglethorpe, Lieut. H. L. PIERCE, Swanton.

To Camp Upton, N. Y., from Washington, Major H. N. JACKSON, Burlington.

To East View, N. Y., from Rockefeller Institute, Capt. G. H. PARMENTER, Montpelier.

Virginia

To Camp Lee, Va., base hospital, from Rockefeller Institute, Lieut. C. H. IDEN, Berryville.

To Richmond, Va., from Camp Dix, Lieut. R. C. HOCKER, Richmond.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Biltmore, N. C., Capt. J. T. BUXTON, Newport News.

To West Point, N. Y., from Fort Oglethorpe, Lieut. W. H. Re MINE, Lodi.

Washington

To Camp Lewis, Wash., base hospital, from Camp Dodge, L. B. BALDWIN, Seattle.

To Vancouver Barracks, Wash., from Southern Department, Capt. J. B. BLAIR, Vancouver.

The following order has been revoked: *To Fort Monroe, Va.*, from Camp Crane, C. R. McCREARY, Tacoma.

West Virginia

To Camp Meade, Md., base hospital, from Detroit, Major H. D. HATFIELD, Huntington.

Wisconsin

To Camp Jackson, S. C., Emerson Field, from Americus, Ga., Capt. J. J. FRANCE, Milwaukee.

To Colonia, N. J., from Walter Reed General Hospital, Capt. J. C. ELSON, Madison.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, N. Y.*, base hospital, from Camp Pike, Lieut. A. YAFFE, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Sen. Surg. G. M. MAGRUDER, rejoin station at Tacoma, Wash., and proceed to Portland, Ore., to effect transfer of property at those stations.

Surg. B. J. LLOYD, granted three months' leave of absence from Jan. 2, 1919, with permission to proceed beyond the seas.

Passed Asst. Surg. J. A. WATKINS, granted two months' leave of absence on account of sickness with permission *to proceed beyond the seas.*

Passed Asst. Surg. H. C. CODY, proceed to Washington, D. C., for duty in epidemiologic investigations of influenza. Relieved at New London, Conn.

Asst. Surg. J. W. MOUNTIN, relieved at Waco, Texas; proceed to Marine Hospital, Chelsea, Mass.

Acting Asst. Surg. H. E. HENRY, relieved at Fort Worth, Texas; proceed to San Antonio, Texas, for duty.

Acting Asst. Surg. W. E. REASNER, proceed to necessary places in the State of Mississippi for duty in connection with the control of influenza.

Scien. Asst. L. L. LEE, relieved from duty in the District of Columbia, *proceed to Chester, Pa.*, for duty.

Scien. Asst. E. N. RILEY, proceed to Philadelphia, Pa., for duty in field investigations of industrial sanitation.

Resignation of Passed Asst. Surg. H. M. THOMETZ accepted by direction of the President, effective March 16, 1919.

Resignation of Asst. Surg. JOHN S. RUOFF accepted by direction of the President, effective March 19, 1919.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Library Given to Hospital.—Dr. Edmund W. Weis, Ottawa, who was recently appointed head of the hygienic institute, LaSalle, has donated his entire medical library to the Ryburn Memorial Hospital, Ottawa.

Officers Returned from France.—Lieut.-Col. Frederick A. Besley, M. C., U. S. Army, has returned to Chicago, and will go for a short vacation to California.——Lieut.-Col. Milton Mandel, M. C., U. S. Army, who went abroad as chief of the medical staff of Base Hospital No. 12, has returned to Chicago.

Proposed Change in Health Law.—The state department of public health is seeking the passage of an act providing for the appointment of a full-time health officer in each of the 102 counties of the state. An effort will also be made to modernize the relation of the state to the state's wards, and to provide physical rehabilitation of the state institutions on the business basis.

New Officers.—At the annual meeting of the Madison County Medical Society and the Madison County Anti-Tuberculosis Association, held in Edwardsville, January 4, Dr. Charles R. Kiser, Madison, was elected president; Dr. Frank O. Johnson, Granite City, vice president; Dr. Edward W. Fiegenbaum, Edwardsville, secretary; Dr. Joseph A. Hirsch, treasurer, and Dr. M. William Harrison, Collinsville, medical director of the tuberculosis association.

Development of Public Charities.—Charles H. Thorne, director of public welfare, has recommended that five new state institutions be established: an institution for feebleminded near Chicago; a state sanatorium for women; a state farm for male misdemeanants; a surgical institution for children, and educational hospitals to perfect the training service. The appropriation required for the establishment of these institutions aggregates more than $1,500,000.

Chicago

Well Known Masseur Dies.—Hugo Ad Oldenborg, one of the first Swedish masseurs to come to this city, a man of exceptional ability and well esteemed by the medical profession of Chicago, assistant professor of kinesitherapy in Rush Medical College, secretary for many years of the Scandinavian Medical Society, died at his home, January 11.

Opium in Influenza Prescriptions.—The health department of Chicago has completed a survey of drug stores which has shown that during the height of the influenza epidemic, physicians made widespread use of medicine containing habit-forming drugs. Between Oct. 1 and Nov. 1, 1918, the survey shows that 741,825 prescriptions had been filled in 946 drug stores in Chicago. Of these 441,641 were for influenza and pneumonia, and of the later 104,010 were found to contain narcotics, either opium, opium derivatives, cocain or chloral.

INDIANA

Deaths Exceed Births.—In Huntington, according to figures made public by the secretary of the city board of health during December, 1918, there were ten more deaths than births. The returns usually show about two births for each death. There were 29 births and 39 deaths. Of the deaths 23 were caused by influenza, 15 from pneumonia following or accompanying the influenza and eight were from other complications of influenza. Influenza deaths in the city were 3 in October, 8 in November and 23 in December.

Orphans Made by the Epidemic.—According to figures given out by the statistician of the state health department, influenza and pneumonia caused 6,011 deaths during the three months ending December 1. In September there were only 191 deaths from these causes, but in October there were 3,291, and in November 2,529. During the period named there were 2,773 deaths of married persons from the epidemic, and allowing an average of two children for each married person this would indicate that the disease made 5,546 orphans.

KANSAS

Personal.—Dr. George M. Gray, Kansas City, who has been acting as medical aide on the governor's staff, has resigned.

Full-Time Health Officer for Wichita.—In the 1919 budget for Wichita, provision is made for a full-time city physician at a salary of $3,000 a year. He will devote his entire time to the service of the city, including the maintenance of a free clinic.

New Officers.—At the annual meeting of the Shawnee County Medical Society, held in Topeka, January 6, Dr. Forrest L. Loveland was elected president; Dr. William M. Mills, vice president; Dr. Homer A. Alexander, secretary, and Dr. Lewis H. Munn, treasurer.

MARYLAND

Dr. Thayer Returns from France.—Brig-Gen. William S. Thayer, Baltimore, who has been serving in France, arrived at Newport News, Va., January 9, and has proceeded to report to Washington, D. C.

Annual Dinner of Health Department.—At the annual dinner given by the medical men of the Baltimore City Health Department in honor of Dr. John D. Blake, Baltimore, commissioner of health, addresses were made by Drs. John F. Hogan, William T. Howard, Bernard J. Wess, John W. France and Harry L. Kolseth, all of Baltimore. A round table discussion of suggestions for improvement of conditions in various city wards closed the program.

Personal.—Major Thomas R. Chambers, Baltimore, who has been stationed for the past nine months in France as a member of the Surgical Operating Squad, has arrived in Baltimore with orders to report to Camp Dix, N. J. Major Chambers was a member of the First Army Division while in France.——Dr. Charles A. Waters has returned to Baltimore from Camp Greenleaf, Ga., where he had been stationed for the past three months after returning from overseas service as a member of the Johns Hopkins Unit.

Health Department Denies "Flu" Report.—Dr. William T. Howard, Baltimore, assistant commissioner of health, has written to Dr. William H. Davis, chief statistician of the United States Bureau of Census, correcting a statement sent out from Washington that Baltimore had the highest death rate last year of any large city in the country. This city was credited with 15,999 deaths, or a mortality of 26.8 per thousand of population. According to the records of the health department, there were 15,120 deaths in the city in 1918, or fewer by 879 than the number given in a bulletin of the census bureau. Dr. Howard figures, therefore, that the city's annual death rate per thousand of population was 25.2. Furthermore, he corrected a published statement that Baltimore led forty-six large cities in the number of deaths from influenza during the epidemic. Philadelphia led these cities in deaths from influenza, with 7.4 per thousand of population. Pittsburgh came next with 6.8 per thousand, and Baltimore was third, with 6.5 per thousand. The influenza death rate in Boston was 5.5, while in Washington it was 5 per thousand. In Baltimore during the epidemic 1,624 persons died from influenza and 2,388 from pneumonia, which was epidemic at the same time. In Philadelphia there were 8,080 deaths from influenza and 5,295 from pneumonia. Pittsburgh had 1,989 deaths from influenza and 2,410 from pneumonia. In Boston there were 3,689 deaths from influenza and 1,099 from pneumonia.

MASSACHUSETTS

Beland to Speak in Worcester.—It is announced that Hon. Dr. Henri S. Beland, M.P., St. Joseph de Beauce, Que., who was a prisoner in Germany for three years, will speak in Worcester, January 26.

Personal.—Dr. William E. Chenery, professor of laryngology in Tufts Medical School, Boston, has been elected a member of the corporation of Boston University.——Drs. Clement H. Hollowell and Richard E. Winslow, Norwood, who were arraigned before the district court, Deadham, December 20, for alleged failure to report influenza cases, pleaded guilty and their cases were placed on file.——Dr. George Klein, Norwood, charged with having failed to report influenza cases, was found not guilty.

Sanatorium Enlarged.—The Central Sanatorium of New England, formerly the Crane Sanatorium, Rutland, is being enlarged so that it may care for a number of discharged soldiers and sailors in addition to the added number of civilian patients. The new sanatorium will be in accordance with the comprehensive plan to care eventually for hundreds or even thousands of patients suffering from tuberculosis. It is planned to provide occupational buildings for those patients whose condition allows them to be profitably employed.

Reprints on Diet and Child Welfare.—The Massachusetts State Board of Health has prepared in separate form a number of reprints of articles appearing in *The Commonhealth*, the monthly journal of the board, on dietary and other subjects, especially with reference to children, and also an outline for a course on child welfare. Among the subjects are "Food for the Child," "Energy-Producing Foods" and "Certain Dietary Essentials." These pamphlets are for general distribution, and are interesting contributions to the various subjects.

Influenza in Fall River.—The *Monthly Bulletin* of the board of health of Fall River for October, 1918, says of the epidemic of influenza: "That the disease was brought into this city through the medium of the members of the Army and Navy service of the United States is clearly shown by our records. Of the first cases reported, fourteen are classified as home on furlough or having been in the service as follows, and others reported were shown to have been visiting in some of these families: 1 from Quincy Shipyard; 1 from Newport Torpedo Station (yeowoman); 1 from Camp Upton, N. Y.; 1 from Newport Training Station; 1 from Newport (soldiers); 1 from Boston aviation service (British); 5 from Boston Navy Yard. In view of the subsequent suffering and death experienced during this epidemic it is to be regretted that the quarantine afterwards placed on all camps, forts and cantonments because of this disease was not recognized as necessary and put into effect before it obtained a foothold in Fall River."

NEBRASKA

Personal.—Dr. Clifford W. Waldon has been appointed city physician of Beatrice, to succeed Dr. G. L. Roe, who has resigned.

Hospital Notes.—A movement has been inaugurated at Kearney for the erection of a large hospital, the building to cost about $100,000. It is understood that there is already $50,000 for the project.——Work is progressing rapidly on the new Lutheran Hospital, Beatrice. It is believed the building will be ready for occupancy by June. When completed the hospital will be able to care for 100 patients.

Smallpox.—City Health Commissioner Ernest T. Manning of Omaha says the smallpox record of that city for 1918 is a disgrace. In a comparative statement of infectious diseases for the year he shows that there were 1,009 cases of smallpox, 651 cases of measles, 427 of diphtheria and 412 of scarlet fever. This preponderance of smallpox cases, he says, is due to lack of vaccination, which should be made compulsory.

NEW HAMPSHIRE

State Health Meeting.—A meeting of the health officers of the cities of the state was held in the Representatives' Hall in the State House, Concord, January 17 and 18. After-war health problems, school hygiene, influenza, venereal disease control and tuberculosis were the chief topics of discussion.

State Antituberculosis Society.—The annual meeting of directors of the New Hampshire Society for the Prevention of Tuberculosis was held in Manchester, recently and Dr. Clarence O. Coburn, Manchester, was elected president; Dr. Herbert L. Smith, Nashua, honorary vice president; Dr. Robert B. Kerr, Pembroke, executive secretary, and Drs. George H. Clarke, Concord; Forrest L. Keay, Rochester; Robert B. Kerr, Pembroke; Frank E. Kittredge, Nashua; William E. Lawrence, North Haverhill; Elmer M. Miller, Woodsville; George P. Morgan, Dover; John H. Neal, Portsmouth; Herbert L. Smith, Nashua; Ellen A. Wallace, Manchester; Charles A. Weaver, New Boston; John M. Wise, Glencliff, Charles Duncan, Concord, and Frederick P. Scribner, Manchester, were elected members of the board of directors.

NEW JERSEY

Tuberculosis Survey.—The health authorities of Atlantic City have arranged to have a tuberculosis survey made in the city, having especially in view the detection in their incipiency of cases of tuberculosis following attacks of influenza. A careful inspection of every recovered victim will be made and those showing signs of tuberculosis will be advised as to the proper course to pursue for their own protection as well as that of their families. It is within the discretion of the health department to order the isolation of patients when it is necessary for the safety of the public. Patients may be ordered to the county camp at Pine Rest.

Personal.—Dr. John A. Beck, Gloucester City, who resigned his position as city physician and health inspector to enter the Army, has been discharged and has returned home.——Dr. Henry B. Dunham, for ten years assistant superintendent and examining physician of New Jersey State Sanatorium for Tuberculosis, Glen Gardner, has been selected as superintendent of the Essex County Hospital, Soho, and Essex Mountain Sanatorium, Verona.——Dr. George W. Endicott, Plainfield, who has been seriously ill at his home, is reported to be improving.——Dr. and Mrs. Thomas H. Tomlinson, Plainfield, celebrated their fiftieth wedding anniversary, December 30.——Dr. J. Alan Maclay has been appointed a member of the board of health of Paterson.

NEW YORK

Officers of Mount Sinai Unit Return from France.—Lieut.-Col. Howard Lilienthal, M. C., U. S. Army, who has been in command of Army Base Hospital No. 3, near Bordeaux, arrived at Newport News, January 4.——Major Edwin Beer of the Mount Sinai unit has also returned home.

Personal.—Dr. Addison T. Halstead, Rushville, has been appointed deputy drug commissioner of the state, with headquarters in Albany.——Dr. Otis Z. Bouton, Fultonville, has been appointed coroner for Montgomery County to fill the unexpired term of the late Capt. Stephen J. H. Reed, Fultonville.——The City Club of Yonkers will tender a testimonial dinner to Dr. Nathan A. Warren, in recognition of the completion of seventeen years of service as president of the club.

Health Insurance Measures.—The first bill for 1919 to be introduced into the New York State Senate was one providing for the reorganization of the New York State Health Department which was submitted by Senator Ross Graves of Buffalo. This bill was introduced at the request of the Associated Manufacturers and Merchants of the state and is regarded in some quarters as a check to the propaganda for compulsory health insurance, though its sponsors deny this and state that the bill stands squarely on its own merits. The bill provides for an organized system of sickness prevention and carries an appropriation of $2,250,000. It is not expected that the bill will be passed at the present time, but it is regarded as a start in the right direction. January 8, a health insurance bill was introduced into the lower house by Assemblyman Joseph Steinberg of the Fifteenth Manhattan District. This bill provides for a system of mutual health insurance funds under the supervision of the Industrial Commission. It aims to supplement the inadequacies of the present Workmen's Compensation Law and provides for maternity benefits. The costs of the insurance are to be borne one half by the employer and one half by the employee. In cases in which the earnings of the employee are less than $9 a week and more than $5 they are to be borne three quarters by the employer and one quarter by the employee. The bill not only provides for health insurance, but also for prevention of disease by lessons in hygiene. An appropriation for this purpose is to be made with the consent of the Industrial Commission. Governor Smith is said to be ardently in favor of the bill and public sentiment is also supporting the measure.

New York City

Harvey Society Lecture.—The third lecture of the Harvey Society series will be delivered at the New York Academy of Medicine, Saturday, Jan. 25, 1919, at 8:30 o'clock, by Major R. M. Yerkes on "Psychological Examination of the Soldier."

Farm Given Medical College.—The Long Island College Hospital has been given a farm for keeping animals used in research, by an anonymous benefactor. Experimental work has already been begun on fowl influenza, diphtheria and chickenpox.

Personal.—Dr. Simon Flexner, director of laboratories of the Rockefeller Institute for Medical Research, has been elected a corresponding member of the Societé Médicale des Hôpitaux de Paris, and has had the title of Officier de la Legion d'Honneur conferred on him by the French government.

Physicians' Association Election.—At the annual meeting of the New York Physicians' Association the following officers were elected: president, Dr. Israel Grushlaw; vice presidents, Drs. James Morley Hitzrot and Samuel Kleinberg; secretary, Dr. Morris Grossman, and treasurer, Dr. Alfred M. Hellman. At the next meeting to be held at the Chemist's Club, January 23, Dr. Solis Cohen, Philadelphia, will read a paper entitled "Lessons from the Two Grippe Pandemics."

OREGON

New Officers.—At the annual meeting of the Portland City and County Medical Society, December 18, the following officers were elected: president, Dr. Charles J. Smith; vice president, Dr. Chester C. Moore; secretary, Dr. Andrew J. Browning, and treasurer, Dr. Katherine C. Manion.

Merging of Health Agencies Urged.—The State Consolidation Commission is recommending the creation of an office of director of public health and the consolidation of the present health agencies with the department. The recommendations made are ten in number, and are as follows:

First.—Creation of the office of director of public health, who shall be appointed by the governor, and be the executive health officer of the state.

Second.—Creation of an advisory nonexecutive public health council of seven members, appointed by the governor, and of which the health officer shall be ex-officio chairman.

Third.—That the Oregon Social Hygiene Society assume charge of the division of venereal diseases under that director.

Fourth.—That the Oregon Tuberculosis Society be authorized to assume charge of the tuberculosis division.

Fifth.—That the child welfare commission be given charge of the child welfare division.

Sixth.—That a deputy health officer be put in charge of the bureau of medical registration and licensure.

Seventh.—Consolidation of the laboratories of the state health department, the dairy and food commissioner, medical school of the University of Oregon, Multnomah county, and the city of Portland.

Eighth.—That a deputy appointed by the director be given direction of the bureau of food and dairy products.

Ninth.—An annual fee to be paid to the state by all licensed members of the health professions.

Tenth.—That all funds appropriated for health work be put under the jurisdiction of the director of public health, and by him apportioned among the various bureaus in his department.

PENNSYLVANIA

Philadelphia

Motion Pictures Aid Clinic.—Teaching surgery and medicine with the aid of motion pictures was demonstrated to the county medical society in Scottish Rite Hall, January 9, by Col. William O. Owen, M. C., U. S. Army, curator of the Army Medical Museum at Washington, who showed several of his "animated charts."

Women Interns for Hospital.—Beginning June 1 and for the first time in the history of the University of Pennsylvania, women physicians will be accepted as interns in the University Hospital. The only restrictions being that there shall be but two women physician interns at one time and that both shall be medical graduates of the University of Pennsylvania.

Influenza Survey Begins.—January 13, members of the Emergency Aid will begin a survey of the homes of the 4,000 women and children who suffered from the influenza last autumn to determine whether they are still in need of attention. This data will then be turned over to the Visiting Nurses' Society.——Influenza during the week ended January 9 had increased, 383 new cases having been recorded.

Social Education Conference.—A social education conference under the auspices of Department No. 10, Health Recreation, Women's Division, Council of National Defense and Women's Section Social Hygiene Division, Commission on Training Camp Activities of the War Department, was held at the Ritz Carlton Hotel, January 6 and 7. Among the speakers were Dr. Wilmer Krusen, director of public health and charities, Dr. Josephine H. Kenyon and Dr. Ellen C. Potter.

Personal.—Lieut. William H. Walsh, M. R. C., has just been made general medical inspector of the Children's Hospital, to be established near Mons, Belgium.——Capt. Frederick S. Baldi, M. R. C., who was attached to the Marine Aviation Corps and the Bombing Squadron, actively engaged around Dunkirk, has returned to this city.——Dr. Elwood L. Drake, Bridesburg, is in a serious condition as the result of injuries sustained by being thrown from his automobile in a collision, January 4.

SOUTH CAROLINA

Influenza.—The report of the officer of the Public Health Service sent to cooperate with the state health authorities in carrying out measures in the epidemic of influenza from September 21 to the first of the year indicates that about 10 per cent. of the entire population of the state suffered from the disease. The number of deaths was said to be about 5,000.

VIRGINIA

State Board Can Supply Physicians.—Dr. Ennion G. Williams, Richmond, state health commissioner, announces that the state board of health is now able to aid communities in need of physicians, since many physicians are now being separated from the Army.

Personal.—Dr. Roy K. Flannagan, city health officer of Richmond, has resigned, the resignation taking effect January 15. Dr. Flannagan has been offered the position of representative of the International Health Board for Virginia.——Dr. Thompson F. Wickliffe has succeeded Dr. James S. Mitchener, Kingston, resigned, as health officer of Lenoir County.

WYOMING

Influenza.—January 1, it was reported that there were on the previous day 300 cases of influenza in Jackson's Hole and that there had been five deaths during the preceding twenty-four hours. Dr. Charles W. Huff, the only physician in the valley was still confined to his home with the disease, and there were several other cases in his family.

CANADA

Influenza Expedition.—A dog team expedition has left Dawson, Yukon, on a trip of 500 miles, with supplies, medicines and masks for combating influenza among the Indians and Eskimos in that remote region. It was dispatched by the Commissioner of Indian Affairs, Ottawa, Canada.

New Hospital for Orillia.—Orillia, Ont., wants to have a new hospital as a memorial to soldiers. Already $60,000 has been raised by private subscription. Altogether $100,000 is required for the purpose; and recently a deputation waited on the Ontario government officials in Toronto to seek provincial assistance. Any soldiers who enlisted from Orillia, or who ever lived there, shall be given free surgical and medical assistance and hospital treatment as long as he lives.

Public Health News.—During the past three months influenza and pneumonia were responsible for 7,158 lives in the province of Ontario. The death rate was the highest in October when 3,105 succumbed to the malady.——There was an alarming increase of the number of cases of venereal diseases in Ontario in December as compared with November: syphilis, December, 64; November, 17; gonorrhea, December, 110; November, 75; chancroid, December, 4; November, 2. One death resulted from syphilis.——In Toronto the number of deaths in 1918 exceeded those of 1917 by 2,009—the total for the former year being 7,060 and for the latter, 5,597. The deaths from influenza and pneumonia numbered 2,067.——Brantford, Ont., will appoint a whole-time officer of health and a pathologist.

Mental Disease Great Menace.—In the Convocation Hall of the University of Toronto, Major Frankwood E. Williams, New York City, M. C., U. S. Army, recently gave an address under the auspices of the Canadian National Committee for Mental Hygiene. He doubted if many had a true conception of the problem presented by mental diseases. He gave figures for New York state and Massachusetts showing that 6,000 new cases enter the hospitals in the former every year and 3,000 every year in the latter. He considered prevention rather than cure the essential way to handle the problem. The United States Army officers have learned from Canada and Great Britain that mental diseases and nervous diseases present a large problem in all armies. The problem must be tackled on the ground of prevention if they wished to get at the root of the matter, and the persons with mental or nervous diseases should be studied as individuals and not as criminals. When they were understood, protected and advised they could get along on their own level in any community.

Personal.—Captain Greenlees and Lieut. John Stenhouse, Toronto, have been transferred to the Ontario Military Hospital, Coburg, Ont.——Surg.-Gen. G. A. Sterling Ryerson, Toronto, has resumed practice in diseases of the eye, after four years in Canadian Red Cross work—a society of which he is the founder in Canada and a past president. During the course of his work he has visited France and England, Quebec and Vancouver, Los Angeles, southern California and Sitka, Alaska. He also spoke in several points in the Eastern states.——Lieut.-Col. Charles S. McVicar, Toronto, is mentioned for the position of commanding officer for the Central Orthopedic Military Hospital.——Col. P. Walter H. McKeown, O. C., Brighton Military Hospital, England, is expected to return to Toronto in March.

GENERAL

Bequests and Donations.—The following bequests and donations have recently been announced:

For the establishment of a home for convalescents at her residence in Payne Township, Chester County, Pa., including a large park, $250,000 by the will of Mrs. Florence Hatfield.

Mt. Sinai Hospital, Chicago, $25,000 as the result of a recent tag day and emergency fund drive.

Chicago Lying-In Hospital, $20,000, and trust funds for the maintenance of beds in the Chicago Lying-In Hospital, the proceeds of a performance of the Great Lakes revue.

Internal Medicine Congress.—At the annual meeting of the American Congress on Internal Medicine, held in New York City, December 31, the following officers were elected: president, Dr. Glentworth R. Butler, Brooklyn; vice presidents, Drs. Frederick Tice, Chicago, and Clement R. Jones, Pittsburgh; secretary-general, Dr. Frank Smithies, Chicago; associate secretary-general, Dr. Joseph H. Byrne, New York City, and treasurer, Dr. Augustus Caillé, New York City.

Influenza in the Large Cities.—In the forty-six largest cities of the United States the epidemic of influenza in the latter part of the year 1918, according to figures of the U. S. Census Bureau, made public, January 5, there were 111,688 death from this disease, which increased the combined death rate for those communities to 19.6 per thousand. Deaths from influenza were 69,439, with 42,149 deaths from pneumonia. The general influenza situation during the past week shows not much change from that of the previous week. In some communities a good many cases have appeared and restrictions have been continued, while in others the disease seems to be slowly subsiding and school and other restrictions are relaxed.

Welfare Work for 1919.—It is announced by the Rockefeller Foundation that the public health activities to be carried out during 1919 will consist chiefly of efforts against yellow fever, tuberculosis in France and malaria and hookworm disease in this and other countries, together with the completion of the war program already undertaken. The yellow fever commission is headed by Major-Gen. William C. Gorgas, who is now in South America in the interest of the work of the commission. The work on tuberculosis in France in cooperation with the American Red Cross will be continued at the request of the French government. The hookworm campaign will be continued in twelve states of this country and in twenty-one foreign states and countries. There are various other studies and investigations being carried on. An important feature of the work of the foundation is the development of training in modern scientific medicine in China, centers for which are almost ready for opening in Peking and Shanghai, in addition to the assistance given medical organizations already established throughout China. At the request of the War Department the War Demonstration Hospital will be continued, as will also the work of the Medical Division of the National Research Council, appointed by the President to coordinate the scientific resources of the nation, and the care and treatment of soldiers mentally and nervously disabled. The estimated income of the fund in 1919 is $6,750,000, of which about $2,250,000 will be for public health and somewhat over $3,500,000 for medical education.

FOREIGN

Fifth Interallies Food Supply Conference.—Four meetings of the scientific commission appointed for this purpose have been held, two at Paris, one at London and one at Rome, and the fifth has recently been under way at Rome.

Foreign Physicians in Spain.—The *Revista de Medicina y Cirugia Practicas* recently mentioned that since 1906 about sixty foreign physicians have been licensed to practice medicine in Spain. They are mostly German, English and North American physicians.

Bequest for Tuberculosis Hospital at Rome.—The rector of the University of Rome has accepted the bequest made by the late American princess di Vicovaro for the foundation of a modern hospital for the tuberculous, to be called the Eleonora (Lorillard) Spencer Cenci Hospital.

Organization of Insane Asylums and Colonies in the Netherlands.—The *Nederlandsch Tijdschrift* reports that all institutions that care for mental disease in the Netherlands—except the Roman Catholic—have recently organized, with headquarters at Utrecht, seeking to obtain better terms for supplies of various kinds. The medical department is not represented in the organization, as its aims are exclusively administrative.

Italian Institution for the Nervous Wrecks of the War.—Subscriptions have been collected and Senator Borletti has donated a handsome villa with extensive grounds near Milan for an institute to care for the *grandi invalidi nervosi* who need special and continuous attendance. The president of the association having the matter in charge is Prof. C. Golgi, who is also senator, with Prof. E. Medea as the medical chief of the new institution.

Medical and Welfare Activities in Italy.—According to the *Italian News Service*, committees have been formed in all the more important cities of Italy for the immediate relief and care of the children of soldiers and sailors crippled in the war. The children will be cared for, clothed and fed, and in the summer, according to the advice of physicians, will be sent to villas requisitioned or donated at the seashore or in the mountains.——A decree conferring power on the mayors of cities to fix maximum prices of medicines most in use has been issued. Heavy penalties have been provided for disregard of the regulations—fines up to $200, imprisonment for a year, and even requisition of the shops of pharmacists.

Pensions for Physicians Disabled in the Practice of Their Profession.—A bill was recently presented in the Spanish senate providing that disability contracted by any physician in the exercise of his profession should be considered as an occupational accident, and the widow and orphans of those who have died in consequence of inoculations and contagions professionally acquired should be entitled to an annual pension. The amount of the pension specified is 2,000 pesetas in towns of 200,000 inhabitants or over, and 1,000 pesetas in towns of less than 10,000 inhabitants, with intermediate amounts. The *Medicina Ibera* states that the bill was presented by Sr. O. Morejon and that the ministro de la Gobernacion is now considering it.

Prizes Awarded by the French Academy of Science.—Seven prizes for research in medical subjects were among those awarded at the recent annual meeting of this organization. One was given to Drs. Cardot and Laugier for their research on the electric stimulation of nerves; one to Dr. S. Chauvet for his monograph on pituitary infantilism; one to Prof. R. Dubois of Lyons for his works on physiology; another to Dr. H. Clement for his research on the action of centrifugation on living cells and living beings. One prize was divided between Nageotte and Sencert for their successful transplantation of dead tendons to repair gaps in tendons, and Drs. P. Duval and A. Grigaut for their research on traumatic shock. The Fanny Emden prize was not awarded but at the request of the donor the arrearages of the prize were given to the widow of Prof. A. Dastre, who was killed in Paris not long ago by a military automobile.

Demobilization of the Profession in Germany.—The *Paris Médical* relates that at the recent annual meeting at Eisenach of the delegates representing the organized profession, the Aerztetag, resolutions were adopted asking the authorities to demobilize first the older physicians, the married, and those who have been longest in the service. Also to appoint the medical officers in the army to points in or near their homes, and to reserve the posts of assistants in the universities for men returning from the front. Free graduate courses for those who desire them were also asked for, as well as special measures for disabled physicians. Another resolution asked that the instruments and automobiles released by the close of the war should be sold to physicians at moderate prices, without middlemen. It was also asked that no permission should be granted for foreign physicians to practice, especially at spas. The concluding resolution asked that circulars should be distributed explaining to the public how it is to their interest to return to their before-the-war physician.

Deaths in the Profession Abroad.—Prof. **B. Krönig**, director of the maternity and the clinic for women's diseases at the University of Freiburg, known best for his "twilight sleep" and intensive roentgen treatment of uterine cancer. ——Prof. **P. Jung** of the chair of gynecology and obstetrics of the University of Göttingen, aged 48.——Prof. **P. Kroemer** of the chair of obstetrics and gynecology at the University of Greifswald.——Dr. **H. Lohnstein** of Berlin, editor of the *Allg. med. Zentralzeitung* and of the *Zeitschrift für Urologie*, aged 53.——Dr. **A. Helweg**, a prominent psychiatrist of Copenhagen, aged 60.——Dr. **J. Eriksen**, a Danish ophthalmologist at Cairo where he served as consul for Denmark, aged 46.——Dr. **F. Sierra y Zafra**, physician in chief of the public hospital system at Madrid, aged 64.——Dr. **S. Pizjuan**, professor of surgery at the University of Sevilla, president of the Real Academia de Medicina and author of "De Re Clinica."——Dr. **J. V. C. Ingerslev**, a Danish physician who compiled the "History of Medicine in Denmark," and was the initiator of relief work in the profession in Denmark, aged 83.

Personal.—Prof. A. Sclavo of Siena has been called to the chair of hygiene at Florence as successor of Professor Roster who recently retired on reaching the age limit. Professor Sclavo has been a leader in matters of hygiene in Italy for years; has been active in organizing the training of sanitary officers in the army. He was also active in the organization of the prophylaxis of tuberculosis in the army.——The chair of anatomy at Rome, left vacant by the recent death of Prof. F. Todaro, is now filled by Prof. R. Versari of Palermo and Naples, known for his research on the anatomy of the bladder and on the embryonal circulation in the eye.——The University of Rome is said to have lost 235 of its students on the field of battle.——Prof. V. Bie of Copenhagen has recently been elected president of the Copenhagen Medical Society and consequently—according to the by-laws of the Danish Medical Association—this disqualifies him from serving as editor of the organ of the association, the *Ugeskrift for Læger*. He has therefore resigned the editorship which he shared with Dr. V. Scheel, and the latter assumes the entire responsibility for this important weekly.——Prof. F. Battistini of the chair of medical pathology at Turin, is recovering from a serious automobile accident.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Deaths in the Profession.—Dr. **V. M. Sotolongo y Lynch** of Havana, one of the founders of the *Abeja Medica*.——Dr. **J. B. Pons**, director of the first national sanatorium for the tuberculous in Cuba during its earlier years, and secretary of the Association of the Medical Press in Cuba.——Dr. **R. S. Gomez** of Buenos Aires, professor of internal pathology and descriptive anatomy at the University of Buenos Aires, and surgeon in chief of the Rivadavia hospital, aged 40.——Dr. **J. N. Acuña**, director of the schools of Buenos Aires, senator, at one time minister, and representative of Argentina in various international gatherings, aged 66.

Donation from Argentine Physicians for the War Fund of French Physicians and Their Widows and Orphans.—A committee was organized among the physicians of Argentina to collect subscriptions for the war fund for relief of physicians and the widows and orphans of physicians in France. The *Prensa Medica Argentina* gives a list of all who subscribed and the amounts, two giving 500 pesos each, one 300 pesos and about a dozen 200 pesos, others giving from 100 down to 5 pesos each. A total of 16,800 pesos was thus contributed, which was recently presented to the French minister at Buenos Aires, and a little cash added, bringing the total to 41,579 francs. The official name of the French Medical War Fund is the Caisse d'assistance médicale de guerre, and associated with it is the Secours de guerre à la famille médicale, both of which are under the patronage of the president of the republic.

CORRECTION

Incorrect Address.—In the article by Hall, Stone and Simpson, entitled "The Epidemic of Pneumonia Following Influenza at Camp Logan, Texas," published in The Journal for Dec. 14, 1918, page 1986, the address of Captain Simpson is incorrectly given as Hamburg, Ark. The correct address is Norristown, Pa.

MEXICO LETTER

Mexico City, Jan. 5, 1919.

Mortality from Influenza

According to statistics approximately estimated, the epidemic which has just passed over the country caused 436,000 deaths.

Death of Dr. Barajas

The recent death of Dr. Carlos Barajas is a distinct loss. He was a prominent physician, professor of anatomy in the Facultad de Medicina and also in the Escuela Nacional Preparatoria; was the author of various works of a general literary character and had started the publication of a manual of anatomy. He was also a popular lecturer and carried on an intelligent propaganda for the cause of the Allies. The government of the French Republic awarded him the "Palmas Academicas," and Sr. Viscomte Dejean, chargé d'affaires for France, presided at the funeral ceremonies.

The Association for Prophylaxis of Blindness

This new association has been doing good work, distributing circulars on the hygiene of the eye; has organized lectures by prominent ophthalmologists, and is planning a free dispensary for the care of eye affections. The association has collected by private subscription 11,000 pesos to defray its expenses.

Aid for the Red Cross

The postoffice authorities have placed on sale a special stamp that sells for more than the ordinary stamp, and the proceeds to be derived from this extra amount are to be handed over to the Mexican Red Cross. The public telephones installed in the postoffice, the use of which heretofore has been gratuitous, now bear a notice that a fee of at least five cents must be paid for each conversation over the telephone, and the sum thus realized will also be turned over to the Red Cross. The Red Cross has elected Sr. C. Hinojosa, director general of the postoffice service, an honorary official of the society in token of recognition of these services.

North American Medical Literature

The use of medical books published in English is beginning to be more common in Mexico. In three months the agent of a Philadelphia publishing house has obtained orders for more than $1,000 worth of medical books, and the interest is so great that certain physicians have joined classes in English in order to be able to read the works of the United States writers which are regarded here as excellent.

A Spanish View on German Science After the War

In a recent interview, the great histologist, Professor Cajal of Madrid, commented on the way in which military medicine and surgery has been dominating the medical literature of the world since the war began. Bacteriology is cultivated so that epidemics may be warded off. He remarked, "No one knows what has been going on in the Central Empires. Since 1915 they have been shut off absolutely from scientific communication with the rest of the world. It is probable, however, that the subjects related to the war predominate there also. I am convinced," he continued, "that when the war is over the rancor between the scientists of the opposing forces will continue. There will be much injustice and much silence. This will be the case much more than after the war of 1870; even then the scientists of France and Germany held aloof from each other for many years. But now the hatred of the savants of the Entente for those of German blood will be enormous, and will last a long time." He was asked whether they would be justified in this. To this he replied: "Unjustified from the scientific standpoint; justified as the punishment of Germany (justificada como escarmiento de Alemania). German science has lost its place in the front rank in this war. Now it is the United States which with incredible swiftness is marching toward the head of the line in science and in world progress." This interview forms the forty-eighth chapter in a biography of Cajal recently published at Madrid by A. del Olmet and J. Torres Bernal.

LONDON LETTER

London, Dec. 18, 1918.

The Last Struggles of the Army Medical Corps

In following the great British advance, which began, August 8, and continued for three months until the armistice was declared, the Medical Corps encountered great difficulties. Passing through the devastated country from Amiens to Le Cateau, the field ambulances and casualty clearing stations struggled to keep up with the fighting troops. As these pushed on faster and faster, the distances the wounded had to travel grew longer and longer. Moreover, although the attack was opened by one army, all the other armies were soon engaged, rendering impossible any interchange of surgical help. Although the casualty clearing stations traveled with less and less equipment, they never moved forward quickly enough, as adequate transport could not be obtained. As the advance became more rapid, the medical arrangements grew progressively simpler; the wounded had to be carried longer distances before operation, which seriously diminished their chances of benefit, even had the number of medical officers been sufficient to cope with all the cases. Moving ever forward and continually reducing their equipment, the accommodation of the casualty clearing stations was inadequate for the number of wounded coming from the field ambulances. Marquees often had to be pitched in a summary way, and when the weather grew colder the difficulty in getting fuel and enough blankets was great. Another trouble was that there were no disinfectors adapted for traveling on shell-wrecked roads. Owing to destruction of railway lines, the ambulance trains could not reach places where they were most wanted. When, November 11, hostilities ceased, the troubles of the medical service grew worse. The troops advanced without fighting, and the medical units had to push on behind them even faster than before; the clearing stations grew still lighter in equipment and weaker in medical officers. It was thought that because there were now no fresh wounded, the work would become much lighter. But in a few days there came toward the medical units a growing stream of released prisoners of all the allied nationalities abandoned by the Germans—underclad, unfed, many very ill, and all verminous. There also came an endless stream of influenza patients, many with severe attacks. Thus over bad roads, broken up by the ceaseless traffic of heavy motor lorries, the sick had to travel in motor ambulances through desolated country sometimes for five days before they could reach a railhead, and there the clearing stations were often so crowded that only the most severely ill could be retained. Here and there buildings could be found for clearing stations, but in many places the patients had to be housed in marquees hastily pitched on the mud.

Lead Poisoning of Children in Australia

It is curious that experience with lead poisoning in children is almost entirely derived from Australia, and that the literature on the subject is almost confined to Australian medical journals. The children are poisoned by handling painted fences, railings, etc. So serious is the danger that a deputation of the Queensland branch of the British Medical Association recently waited on the home secretary, asking him to include a clause in the bill to amend the health act dealing with the use of lead in paint on surfaces within the reach of children. Later a deputation of representatives of the Master Painters and Decorators Association waited on the home secretary to answer statements made by the British Medical Association. Finally a conference was held between the two bodies, and the following representations were made to the home secretary: 1. In order to prevent lead poisoning in children, it is necessary to prevent the powdering of lead paint within their reach. 2. As the powdering occurs on fences, palisadings and veranda railings exposed to the weather, it is necessary to use a paint for these surfaces that does not easily powder. 3. A paint should be used that is manufactured on a base of not greater than 60 per cent. of lead carbonate and not less than 40 per cent. of zinc oxid. Such paint should be ground by the manufacturer, either in paste or liquid form, and must bear the manufacturer's guarantee to the effect that it complies with this regulation. 4. The vehicle used in such paint should be a mixture of genuine pale boiled oil (linseed) and genuine raw linseed oil. 5. The surfaces specified above, and within the reach of children, must be painted every three years, in order to prevent powdering. It would be advisable that these surfaces be washed down annually. 6. The total prohibition of white lead is unnecessary.

The Treatment of Venereal Diseases

In a previous letter to The Journal, the precautions to be taken on demobilization to prevent the spread of venereal diseases to the civil populations were mentioned. The government has now opened negotiations with the naval and military authorities for the release from the army and navy of physicians experienced in the treatment of venereal diseases. It urges local authorities to arrange more frequent clinics at existing venereal disease centers by arrangement with the voluntary hospitals and otherwise, to hold evening clinics, if this is not at present done, and to provide many additional centers. The aim is to provide a center in every town with a population of more than 20,000. The appointment of whole-time venereal disease officers is urged. These officers should have considerable experience in modern methods and be under the supervision of the health officers. When necessary, part-time clinical assistants would be provided or a rota of physicians with special experience.

Drink Control

The shortage of food during the war led to great restriction in the production and consumption of alcoholic drinks. The effect on the amount of intoxication formed the basis of a paper by Lord D'Abernon, chairman of the Central Control Board (Liquor Traffic) on the causes of drunkenness. It might be supposed that excessive drinking is mainly due to bad environment, such as bad housing, insufficient amenities for food and refreshment, absence of healthy recreation, excessive number of saloons, and custom; or, on the other hand, that drinking is due to morbid predisposition of the individual. The importance of environment is shown by the statistics given in the accompanying tables, which contrast the positions before and after the drink traffic was controlled as a war measure. Thus, under a system of regulation of the conditions of drinking, reinforced by such indirect influences as the provision of canteen facilities, drunkenness in women, as compared with the year 1913, had been reduced by 60.6 per cent., their mortality from alcoholism and from cirrhosis of the liver had decreased by 69.1 per cent., and 51.5 per cent., respectively; the frequency of delirium tremens in women had fallen by 79 per cent., and the deaths from suffocation in infancy by 42.6 per cent. An even greater falling off had been brought about, within the same period, in the drunkards amenable to the inebriates acts. Thus, the number of persons proceeded against for habitual drunkenness in England and Wales in 1913 amounted to 332, but was only 27 in 1917. The admissions to inebriate reformatories similarly declined from 310 to 29—a result, however, to which other factors perhaps contributed.

EFFECT OF CONTROL OF DRINK TRAFFIC

Year	Convictions for Drunkenness	Deaths from Alcoholism, Excluding Cirrhosis of the Liver	Deaths from Cirrhosis of the Liver	Deaths from Suffocation in Infancy
1913	35,765	719	1,665	1,226
1914	37,311	680	1,773	1,233
1915	33,211	584	1,525	1,021
1916	21,245	333	1,163	744
1917	12,307	222	808	704

CASES OF DELIRIUM TREMENS TREATED IN CERTAIN POOR LAW INFIRMARIES (WOMEN ONLY)

	Number of Cases
Prewar, 1913-1914	214
Precontrol, 1914-1915	239
First year of control, 1915-1916	121
Second year of control, 1916-1917	45

PARIS LETTER

Paris, Dec. 5, 1918.

Heteroplastic Nerve Grafts

Dr. G. Roussy and Dr. A. Reverdin reported to the Société de neurologie their results from the use of heteroplastic nerve grafts according to the method of Dr. Nageotte, i. e., using pieces of nerves removed from dead-born calves, the grafts having previously been fixed in alcohol. Roussy and Reverdin treated the following cases in this manner: (1) A case of paralysis of the internal popliteal nerve, the result of complete division of the nerve, in the middle portion of the thigh, with separation of the ends for a distance of 5 cm. (the external popliteal being intact). After freshening the two ends of the nerve, a nerve graft, measuring 20 cm. in length, taken from the sciatic nerve of a dead-born calf, was interposed. (2) A case of complete division of the ulnar nerve in the axilla, with a separation of several centimeters and a cicatricial neuroma on each end of the nerve. A 10 cm. long nerve graft, taken from a dead-born calf, was interposed. (3) A case of division of the ulnar nerve, associated with causalgia of the median, the result of a wound in the middle third of the arm. A graft, 5 cm. long, from a dead-born calf was interposed. (4) A case of neuroma of the ulnar from a wound in the forearm which would not permit of the conduction of impulses through the nerve. The neuroma was resected, the ends of the nerve were freshened, and a 5 cm. graft from a dead-born calf was interposed.

These operations, the first of which was performed only nine months ago, are still too recent to permit of judging of the functional results which may follow from this procedure. However, it can be stated that the grafts are tolerated perfectly by the tissues. In no case has any local reaction manifested itself, and the wounds healed by first intention.

Medical Examinations

The minister of public instruction has addressed a communication to the rectors of the universities authorizing them to make a concession to medical students who have been called twice for the same examination at the end of the year in only one subject so that they do not need to take again the work of the entire year. These students will be permitted to continue their course of study without conditions until the March semester. But, in the event of another failure, the work done under this permission will be declared void and the whole year's work must be done over again.

Reorganization of the University of Strasbourg

The important question of the reorganization of collegiate teaching in Alsace and Lorraine is receiving the consideration of M. Lafferre, minister of public instruction. He has appointed a commission consisting of the deans of the faculties of science and arts, of savants and of professors, who will visit the scientific institutions, the faculties and the laboratories in these two provinces and report on the present condition and the needs of these institutions. A plan of reorganization of the University of Strasbourg will be submitted by this commission. The members of this commission are: MM. Paul Appell, dean of the faculty of science of Paris; Haller, director of the Ecole de physique et chimie and member of the Academy of Sciences; Haug, professor in the Sorbonne, member of the Academy of Sciences; Professor Roger, dean of the medical faculty of Paris; Guillet, professor in the Paris science faculty, etc. Nearly all the members of the commission were originally Alsatians. The mission will visit Strasbourg, Metz and Mulhouse, taking about ten days for the trip.

Admission to Hospitals of Progressive Cases of Tuberculosis

The under-secretary of state for the Service de Santé militaire has directed that all men with active tuberculosis, open or closed, can be admitted to the sanatorium hospitals, except the advanced hectic fever (mixed infection) and advanced cavity cases. Other tuberculous patients who should not be sent to these hospitals are (1) those suspected of having the disease and whose cases can be diagnosticated and disposed of in the centre de triage (evacuation hospital), or by consultation with the physician of the sector; (2) cases of pleuro-pulmonary sclerosis, the results of an old, long healed tuberculous process without any manifest or detectable symptoms, which can also be disposed of as the cases first mentioned.

Marriages

John Thomas Paine Wickliffe, Lieut., M. C., U. S. Army, Lebanon, Ky., to Miss Elizabeth Wolfe of South Carrollton, Ky., December 31.

Everett Morris, Capt., M. C., U. S. Army, to Miss Helen Bernedine Freer, both of Chicago, at New Haven, Conn., December 21.

Arthur Eugene Billings, Philadelphia, to Miss Mary Packard of Villanova, Pa., at Rosemont, Pa., December 23.

Charles Clifford Macklin, Pittsburgh, to Miss Madge DeGrofft Thurlow, at Philadelphia, September 17.

Frank Theophile Beatrous, New Orleans, to Miss Grace Phyllis Hayne of Boyce, La., December 26.

LaSalle Archambault, Albany, N. Y., to Miss Yvonne Archambault of Montreal, Que., December 26.

Raphael Schillinger, Brooklyn, to Miss Selma Lille of New York City, December 22.

Deaths

Henry Lincoln Dearing, Braintree, Mass.; Bellevue Hospital Medical College, 1890; aged 52; a member of the Massachusetts Medical Society; a member of the Association of Military Surgeons of the United States; a member and secretary of the local school board from 1882 to 1899; a member of the local board of health; lieutenant and assistant surgeon, Fifth Infantry, M. V. M., in 1901, and major and surgeon in 1905; died at his home, recently, from influenza.

Earle William Gilroy ⊕ Lieut., M. C., U. S. Army, Minneapolis; Rush Medical College, 1916; aged 25; who entered the service, Dec. 5, 1917, and at the time of his discharge, Dec. 8, 1918, was head of the department of pathology at the base hospital, Camp Wheeler, Macon, Ga.; died in Minneapolis, December 30, from pneumonia following influenza.

Melville C. Martin, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1882; aged 70; a Confederate veteran and commander of the North Georgia Brigade, U. C. V., for eighteen years chief surgeon of the Piedmont Air Line Railway, and for thirty years city physician; died at his home, December 19, from bronchial pneumonia.

Alpheus Alonzo Bondurant ⊕ Cairo, Ill.; Bellevue Hospital Medical College, 1875; aged 68; for many years recording and corresponding secretary of the Southeast Missouri Medical Association; died at his home, December 7, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

Cornelius Williams, St. Paul; College of Physicians and Surgeons in the City of New York, 1874; aged 70; a member of the Minnesota State Medical Association, and once president of the Ramsey County Medical Society; a specialist in diseases of the eye, ear, nose and throat; died in St. Luke's Hospital, St. Paul, December 30.

Alfred James Weed, Granby, Conn.; College of Physicians and Surgeons in the City of New York, 1878; aged 61; who was struck by an automobile while crossing a street in Granby, December 24, sustaining injuries to his right leg; died in the Hartford (Conn.) Hospital, December 29, from bronchial pneumonia.

Moss McB. Bannerman, Shreveport, La.; University of Virginia, Charlottesville, 1885; aged 53; once president of the DeSoto Parish Medical Society; who was injured in a collision between a trolley car and his automobile, December 30, died at the Highland Sanitarium, Shreveport, December 31.

Mandaville W. McClain, Vera Cruz, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1895; American Eclectic Medical College, Cincinnati, 1896; aged 47; a member of the Indiana States Medical Association; died at the home of his sister-in-law in Bluffton, December 28, from heart disease.

Elmer D. Olmsted ⊕ Spokane, Wash.; Homeopathic Medical College of Missouri, St. Louis, 1878; aged 69; for three terms a member of the State Board of Medical Examiners; formerly mayor of Spokane; first president of the Chamber of Commerce of Spokane; died, about December 29.

Lewis U. Iverson, Christine, N. D.; University of Minnesota, Minneapolis, 1897; aged 54; died at his home, about December 26, from the effects of a gunshot wound of the head believed to have been self-inflicted, with suicidal intent, while suffering from a nervous breakdown.

Thomas Byram Vice, Flemingsburg, Ky.; Medical College of Ohio, Cincinnati, 1890; aged 51; a member of the Kentucky State Medical Association; president of the Fleming County Medical Society; died at his home, November 7, from bronchial pneumonia following influenza.

Carl Dinsmore Gray ⊕ Lieut., M. C., U. S. Army, Portland, Me.; Bowdoin Medical School, Brunswick and Portland, 1915; aged 32; who had received an honorable discharge from the Army, died while en route to his home in Portland, December 19, from complications following influenza.

Herman William Schlappi ⊕ Fulton, N. Y.; University of Buffalo, N. Y., 1904; aged 40; who was honorably discharged as lieutenant, M. C., U. S. Army, April 30; a Fellow of the New York Academy of Medicine; died at his home, November 21, from carcinoma of the stomach.

Sidney Charles Vermilyea ⊕ Lieut., M. C., U. S. Army, Poughkeepsie, N. Y.; University of Syracuse, N. Y., 1912; aged 31; assistant physician in the Hudson River State Hospital; who went overseas several months ago, is reported to have died in the service.

Clarence William Anderson, Rochester, Minn.; University of Louisville, Ky., 1911; aged 32; a member of the Minnesota State Medical Association; a member of the staff of the Mayo Clinic, Rochester; died in Red Wing, Minn., December 28, from heart disease.

Samuel Victor Rosenkranz ⊕ Lieut., M. C., U. S. Army, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1915; aged 28; died in the United States Marine Hospital, San Francisco, October 20, from pneumonia following influenza.

Frank Trimper Allen, Neodesha, Kan.; Northwestern University Medical School, Chicago, 1873; aged 69; a member of the Kansas Medical Society; division surgeon of the St. Louis and San Francisco Railroad; died at his home, January 2.

Thomas Joseph Courtney ⊕ Asst. Surg., Lieut. (j. g.), U. S. Navy, Worcester, Mass.; Tufts College Medical School, Boston, 1912; aged 32; who entered the Navy, Nov. 17, 1917, and was on duty at Norfolk, Va.; died at Norfolk, December 27.

William Sutherland Connery ⊕ Saginaw, Mich.; University of Michigan, Ann Arbor, 1889; aged 50; who served in the Navy during the war with Spain, and was for many years coroner of Saginaw County; died at his home, December 23.

Edward Merrick Semans ⊕ Delaware, Ohio; Miami Medical College, Cincinnati, 1890; aged 54; major and surgeon during the war with Spain; died at the home of his wife's mother in Portsmouth, Ohio, December 31, from heart disease.

Gerhard Frederick Hartwig ⊕ Lieut., M. C., U. S. Army, Young America, Minn.; University of Illinois, Chicago, 1915; aged 29; on duty with the Three Hundred and Fifty-First Infantry, A. E. F., in France; was killed in action, October 31.

John Darby Gaskins ⊕ Jacksonville, Fla.; College of Physicians and Surgeons in the City of New York, 1905; aged 38; obstetrician to Riverside Hospital, Jacksonville; died at his home, October 10, from double pneumonia following influenza.

Rufus Allen Thompson, Norwich, N. Y.; New York University, New York City, 1879; aged 65; once secretary and president of the Chanango County Medical Society; died in his office in Norwich, December 28, from heart disease.

Theodore LeGrande Burnett ⊕ Capt., M. C., U. S. Army, Louisville, Ky.; University of Louisville, 1913; aged 28; on duty at Camp Shelby, Hattiesburg, Miss.; died in that camp, November 5, from pneumonia following influenza.

Carl Ernst Hermann Graeb, Denver; College of Physicians and Surgeons in the City of New York, 1894; aged 55; formerly city chemist of Denver; whose license was revoked in 1907; died at his home, December 27, from dropsy.

Theron Nichols, South Pasadena, Calif.; Northwestern University Medical School, Chicago, 1867; aged 77; formerly of Milwaukee; a veteran of the Civil War; died at his home, December 29, from asphyxiation by illuminating gas.

William W. Hall, Toledo, Ohio; Northwestern Ohio College, Toledo, Ohio, 1885; aged 56; who was assaulted by a saloonkeeper, December 12; died in St. Vincent's Hospital, Toledo, December 19, from cerebral hemorrhage.

Royden Benedict Yoder ⊕ Lieut., M. C., U. S. Army, Northwood, Iowa; Hahnemann Medical College, Chicago, 1909; aged 33; died at Camp Custer, Battle Creek, Mich., December 9, from pneumonia following influenza.

John Herbert Bunn, Springfield, Ohio; Starling Medical College, Columbus, Ohio, 1902; aged 44; a member of the Ohio State Medical Association; died at his home, December 13, from pneumonia following influenza.

John Jennings Cleckley, Bamburg, S. C.; University of Maryland [illegible] a member of the South Carolina [illegible] at his home, October 24, from pne[illegible]

Edwin Emery Jones ⊕ Colebrook, N. H.; Dartmouth Medical School, Hanover, N. H., 1894; aged 48; was killed by the overturning of his automobile on an embankment near North Stratford, N. H., December 29.

Joseph Louis Swarts ⊕ Lieut., M. C., U. S. Army, St. Louis; St. Louis University, St. Louis, 1911; aged 33; a specialist in pediatrics; on duty at Fort Oglethorpe, Ga.; died at that post, December 24, from pneumonia.

George W. Smith, Minneapolis, Kan.; American Eclectic Medical College of Ohio, Cincinnati, 1879; aged 78; a veteran of the Civil War; died at his home, December 6.

Henry Kip ⊕ Paterson, N. J.; College of Physicians and Surgeons in the City of New York, 1877; aged 66; died at his home, December 23, from pneumonia.

Guthrie Olaf Burrell ⊕ **Lieut., M. C., U. S. Army,** Bucyrus, Ohio; Ohio State University, Columbus, 1916; aged 26; who went overseas in April, 1918; was killed in action, September 28, in France, death being due to a shrapnel wound of the head.

John Colavin McCabe, Hamilton, Ont.; Trinity Medical College, Toronto, Ont., 1886; aged 63; a member of the College of Physicians and Surgeons, Toronto; died at his home, November 18, from pneumonia.

John H. S. Reiley, Jr., Sardinia, Ind.; Medical College of Indiana, Indianapolis, 1904; aged 40; a member of the Indiana State Medical Society; died at his home, December 20, from pneumonia following influenza.

Willoughby K. Kistler, Leighton, Pa.; Bellevue Hospital Medical College, 1870; aged 72; a member of the Medical Society of the State of Pennsylvania; died at his home, December 27, from pneumonia.

George Anderson Cubbison, Erie, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 55; a specialist in ophthalmology; died at his home, December 21, from pneumonia following influenza.

Edward Humphreys, Philadelphia, Hahnemann Medical College, Philadelphia, 1881; aged 61; a member of the Medical Society of the State of Pennsylvania; died at his home, December 25, from nephritis.

Lloyd Reuben Boutwell ⊕ **Lieut., M. C., U. S. Army,** Kansas City, Mo.; Washington University, St. Louis, 1916; aged 29; is reported to have died in France, November 14, from wounds received in action.

Eugene F. Taylor, Greensburg, Ky.; Kentucky School of Medicine, Louisville, 1892; aged 49; a member of the Kentucky State Medical Association; died at his home, October 26, from pneumonia.

Allen R. Ransom, Denver (license, Illinois, 1878; Colorado, 1892); aged 61; whose license was revoked in April, 1918; was found dead in his office in Denver, December 17, from heart disease.

Hugh Dyosephus Wood ⊕ Angola, Ind.; Bellevue Hospital Medical College, 1867; aged 83; a practitioner of Steuben County, Ind., for more than fifty years; died at his home, December 18.

William C. Fowler, Mount Sterling, Ill.; Missouri Medical College, St. Louis, 1887; aged 57; at one time a member of the Illinois State Medical Society; died at his home, December 18.

John Randolph Sloan ⊕ Stanley, Kan.; Kansas City (Mo.) Medical College, 1891; aged 67; died in St. Joseph's Hospital, Kansas City, Mo., December 6, from bronchopneumonia.

John William Beebout, Dexter City, Ohio; Starling Medical College, Columbus, Ohio, 1896; aged 47; a member of the Ohio State Medical Society; died, December 25, from nephritis.

James Marsh Jackson ⊕ Boston and Beverly Farms, Mass.; Harvard Medical School, 1891; aged 54; a member of the New England Pediatric Society; died at his home, December 27.

Elizabeth H. Trout, Chicago; Northwestern University Woman's Medical School, Chicago, 1884; aged 70; died at her home in Austin, Chicago, November 23, from pernicious anemia.

James Lawrence Schrote ⊕ Vanlue, Ohio; Eclectic Medical Institute, Cincinnati, 1886; aged 58; died at his home, October 22, from carcinoma of the liver.

George Rankin Hyde, Prairieville, Mich.; Bellevue Hospital Medical College, 1885; aged 65; elected probate judge in 1916; died at his home, December 14.

John E. Bahrenburg, Glendale, Calif.; Missouri Medical College, St. Louis, 1877; aged 61; died at the home of his son in Oil Center, Calif., December 23.

Oswald F. Rudolph, Corning, Calif.; Cincinnati College of Medicine and Surgery, 1885; aged 62; a member of the Medical Society of the State of California; died at his home, December 13, from heart disease.

John Stephen Herlihy, San Diego, Calif.; University of Buffalo, N. Y., 1909; aged 35; died at his home, December 21, after an operation for appendicitis.

John M. Wilkinson, Evart, Mich.; Philadelphia University of Medicine and Surgery, 1869; aged 73; died at his home, December 15, from influenza.

John Cooper, Blackfoot, Idaho; Eclectic Medical Institute, Cincinnati, 1870; aged 77; died at his home, December 16, from a nervous breakdown.

Isaac N. Myers ⊕ Maples, Ind.; Medical College of Fort Wayne, Ind., 1877; aged 64; died at his home, October 10, from cerebral hemorrhage.

Balthazar J. Meyer, Chicago; University of Christiania, Norway, 1877; aged 68; died at his home, December 30, from tuberculosis.

Jules LePanet Fremont, Quebec, Que.; Laval University, Quebec, 1909; aged 33; died at his home, October 12, from influenza.

George Edward Murray, Hagerstown, Md.; Hahnemann Medical College, Philadelphia, 1882; died, recently, at his home.

Darius G. Pickett, Fredonia, N. Y.; University of Buffalo, N. Y., 1874; aged 77; died at his home, December 27.

Died in the Service
in France
Capt. W. A. Fair, M. C.,
U. S. Army, 1883-1918
(See The Journal, last week, p. 134)

Died in the Service
in France
Lieut. Reese Davis, M. C.,
U. S. Army, 1883-1918
(See The Journal, Jan. 4, p. 58)

Died in the Service
in France
Lieut. G. O. Burrell, M. C.,
U. S. Army, 1892-1918

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

"PLURIGLANDULAR" MIXTURES

Caps. Adreno-Spermin Comp., Caps. Antero-Pituitary Comp., Caps. Placento-Mammary Comp., Caps. Thyro-Ovarian Comp., Caps. Hepato-Splenic Comp., Caps. Pancreas Comp., and Caps. Thyroid Comp., Not Admitted to N. N. R.

After considering the evidence for the several "pluriglandular" mixtures described below, the Council declared them inadmissible to New and Nonofficial Remedies. The Council's action was communicated to the manufacturer, Henry R. Harrower, in accordance with the usual procedure. After giving due consideration to the manufacturer's reply the Council authorized publication of the report which appears below.

W. A. PUCKNER, Secretary.

With the offer "to supply you with as much literature as may be necessary and as little of the actual remedies as may be desired" if "the prospects for the inclusion of these formulas in N. N. R. are good," Henry R. Harrower sent the Council a booklet descriptive of his preparations and labels for the following mixtures:

Caps. Adreno-Spermin Comp., each said to contain "Adrenal Gland (total) gr. ¼, Thyroid Gland (U. S. P.) gr. 1/12, Spermin Extr. (from Gonads), Brain and Spinal Cord aa gr. 1, Calc. Glycerophosphate q. s. ad gr. 5."

Caps. Antero-Pituitary Comp., each said to contain "Anterior Pituitary Body gr. 2, Thymus Gland gr. 1, Thyroid Gland (U. S. P.) gr. 1/12, Calcium-phosphorus Comp. q. s. ad gr. 5."

Caps. Placento-Mammary Co., each said to contain "Desiccated Placenta gr. 2, Mammary Substance gr. 1½, Pituitary Body (total) gr. ⅓, Calcium-phosphorus Comp. q. s. ad gr. 5."

Caps. Thyro-Ovarian Comp., each said to contain "Desic. Corpora Lutea Ovarian Substance gr. 2½, Thyroid Gland (U. S. P.) gr. 1/12, Pituitary Gland (total) gr. ⅛, Calcium-phosphorus Comp. q. s. ad gr. 5."

Caps. Hepato-Splenic Comp., each said to contain "Liver Parenchyma, Spleen Substance aa gr. 2, Powd. Bile Salts gr. ½, Adreno-Spermin Co. (No. 1) gr. 1."

Caps. Pancreas Comp., each said to contain "Adrenal Gland, Pituitary Gland (total) aa gr. ½, Ovarian Substance gr. 1, Pancreas Substance q. s. ad gr. 5."

Caps. Thyroid Comp., each said to contain "Desic. Thyroid Gland (U. S. P.) gr. ⅛, Calcium-phosphorus Comp. q. s. ad gr. 5."

The Council declared these preparations inadmissible to New and Nonofficial Remedies, for reasons which follow:

1. Each of the mixtures contains one ingredient or more, which is neither recognized in the U. S. Pharmacopeia nor admitted to New and Nonofficial Remedies, namely: "Spermin Extract," "Brain," "Spinal Cord," "Desiccated Placenta," "Liver Parenchyma," "Spleen Substance," "Pancreas Substance" and "Calcium Phosphorus Comp. (Each 100 gm. represents Magnes. Phos. 1; Calc. glycerophos. 4; Potas. bicarb. 15; Sod. bicarb. 22 and Sod. chlor. q. s.)." For obvious reasons the Council does not accept a mixture containing an indefinite ingredient and hence it would be necessary as a preliminary for the consideration of any one of the mixtures that their unofficial ingredients be made eligible for New and Nonofficial Remedies by the submission of evidence that such ingredient is of uniform composition and that it is therapeutically valuable when given by mouth. There is no evidence that many of these organs have any value whatever when administered by the mouth or in any other way.

2. In the light of our knowledge the administration of gland mixtures in the host of conditions enumerated in the advertising circular is irrational and on a par with the use of the shotgun mixtures once in vogue.

Be it a pharmaceutical mixture, a "mixed" vaccine, or a "pluriglandular" product, the combination of two medicinal ingredients in a mixture must be considered contrary to rational therapy unless a good reason exists for such combination. Such mixtures are held in conflict with Rule 10 unless the manufacturer presents acceptable evidence for the value of his combination. A physician may prescribe any mixture which he considers indicated in a given case, but the marketing of mixtures of drugs in fixed proportions is in most instances irrational and a detriment to sound therapy.

Correspondence

"THE TREATMENT OF AMEBIC DYSENTERY WITH IPECAC BY RECTUM"

To the Editor:—In THE JOURNAL, Sept. 28, 1918, p. 1049, Dr. George B. Lawson gives the histories of two cases of amebic dysentery successfully treated by rectal injection of an unfiltered infusion of ipecac. He refers to Drs. Brem and Zeiler as being the first to administer the drug by the rectum and through the opened appendix. He also firmly believes in the amebicidic action of ipecac.

In an article in the *Grèce médicale* (**18**:6, 1916; abstr. J. A. M. A. **67**:474 [Aug. 5] 1916) I described how I was induced to administer ipecac by the rectal route years before the introduction of emetin hydrochlorid by Rogers, because of the intolerance of the stomach to ipecac administered according to the Brazilian method. I used a filtered infusion of lesser strength and volume than Lawson's by the rectal drip method, so as to have it absorbed. The symptoms of poisoning, often severe, proved that absorption was complete.

I did not aim at a local action of the drug on the ameba. As is known, that parasite in its vegetative phase does not lie free on the mucosa of the intestine, but is deeply embedded in its wall. Were this not true, then any other amebicide, especially silver nitrate, would effect a cure in amebic dysentery. No doubt emetin is a poison specially to amebas, as santonin is a poison for ascarides and as other agents are for other parasites. But even in the latter cases one must ask whether the action of the drug on the parasite is the result of contact, or does it follow after resecretion by the intestine of the previously absorbed germicidal substance? At all events, the action of emetin, injected subcutaneously, on amebas in the viscera, is not a direct one; the emetin reaches them diluted in the fluids of the body in a proportion of about 1:1,000,000; and it can be effected only by parasitotropy, which, by the rapidity of the circulation, brings the germicide in contact with the parasite in a short space of time.

This affinity shown by emetin for amebas is undoubtedly due to certain leukocytes. The action of pharmaceutic substances, when not immediately poisonous by coagulation of albumin or disintegration of cell structure, is a mediate one. They are subject to the general laws of nutrition—absorption and elimination. Their active course through the body is possible only by the intercession of the colloids, and the vast range of electric, organotropic energy is undoubtedly due to antigenic stimulation of cells. All function is based on fluctuations of the chemism of protoplasms and the physicism of solutions, and it is also by changes in their equilibrium that disease and recovery ensue.

As to the proper way for calling forth those changes, the shortest is not always the best. As we know, digitalis, specially directed to the organs of circulation, is less potent when directly introduced into the blood stream than when injected subcutaneously. Emetin seemed to me to belong to that class of substances, apparently offensive to the hematopoietic system and rejected by it in the fluids and tissues, being ultimately absorbed by degrees.

On the other hand, the various modes of administration of drugs are not equally adapted to the various remedial agents, even for the same drug in different form. I found that while the stomach is less tolerant to ipecac than to emetin, the reverse is true of the rectal route.

I. CECIKAS, M.D., Athens, Greece.

"THE TREATMENT OF HYSTERIA"

To the Editor:—There is so much that is good in Capt. J. M. Wolfsohn's contribution concerning the treatment of hysteria (The Journal, Dec. 21, 1918, p. 2057) that it is regrettable that he has added statements which negative a great deal of the positive part of his paper. His statement that "very little has ever been contributed to the treatment but volumes on the classification of hysterical disabilities" sounds peculiar when one remembers the volumes that have been written concerning hypnotism, reeducation and psychanalysis in the treatment of hysteria. He is modest enough at the beginning to say that the symptom is merely the outward sign, and that we wrongly say we have cured hysteria when we merely cure the hysterical symptom. Yet a little later he states that he cures more than 90 per cent. of the cases within the first twenty-four hours. The old methods of reeducation, combined with the use of mechanical adjuvants, he speaks of with kindly tolerance. He states that he cures in from one-half to one hour the same patients who had electrical treatment for six months by these old methods. Arousing our interest in this way, it comes as a disappointment when we later read that his methods consist also in the use of these mechanical measures coupled with peremptory commands. To quote from one of his cases: "He was finally treated with a mild faradic current and cured after three hours of treatment." To make matters worse, Captain Wolfsohn in his rules of treatment says that every case must be studied fully, and especially psychologically, before treatment is begun, and that this can even take the form of psychanalysis. How inconsistent this sounds in connection with his remarks in the earlier part of his paper that "he cures and completely cures more than 90 per cent. in twenty-four hours." If Captain Wolfsohn can make a complete psychologic study of every hysterical patient in one day, he is doing more than has heretofore been thought possible. However, I am sure he does not mean this but that he has allowed his enthusiasm to overrun his form of expression. Exaggeration and overvaluation of one's efforts is a hysterical trait, one of those often untouched and untreated manifestations of the hysterical psyche which the Captain speaks about in the earlier part of his paper. The importance of suggestion and the stronger influence that suggestion furnishes under military discipline perhaps explain the remarkable proportion of cure of symptoms he has effected. One gathers from his paper that he is a disciple of Babinski and a believer in the Déjerine isolation treatment but since "very little has ever been contributed to the treatment" he ignores those sources upon whose methods his own are based. In military circles one can do more than in civil life. "When the patient resists the cure," the Captain says, "this must be broken down by strong persuasion or by faradism." In civil practice, when the patient resists a cure the physician must desist because, as a rule, the patient goes to some other physician. This negatives also some short roads to a successful treatment which the Captain offers, such, for instance, as: "Do not discontinue the treatment until the cure is accomplished." And we feel that Rule 25, which says that "the secret of psychotherapy is a mental combat between the physician and the patient," is, to say the least, a rather unscientific and certainly unpsychologic point of view.

Edward E. Mayer, M.D., Pittsburgh.

To the Editor:—I have read the article on "The Treatment of Hysteria," by Capt. Julian M. Wolfsohn, with the hope of getting some new and really advanced ideas on the treatment of hysterical cases known on the firing line as shell shock cases. Many of these cases have been treated here in American base hospitals, with the exception that the injuries causing the condition were not received on the firing line; but these cases demonstrated all the points of interest that Captain Wolfsohn set forth in his interesting paper. In his final analysis, however, in laying down the cardinal principles of treatment, he fails, in my opinion, to state at least two, if not three, very important factors:

First, it would seem that at least many of these patients sustained some physical injury in combination with the hysteria, and that in all the cases he reports there was not one with a purely psychoneurotic disturbance alone. It has been demonstrated beyond a doubt that the patient who originally received a physical injury followed by some form of psychoneurotic symptoms is more easily cured: there is a physical fact from which one may convince the patient that he has recovered; and now that he is physically normal, he must be nervously normal as well.

Second, in the cases reported, all the patients were ill from a few weeks to many months. During that time, while waiting for the physical disturbance to clear up, the patient has been receiving subconscious mental treatment that has not been stimulated from the standpoint of intensive mental treatment by reeducation, which is a real fundamental principle in the treatment of all psychasthenic or psychoneurotic cases. In other words, the patient has undergone a real physical treatment with nervous and mental rest, and when the psychologic time arrives, he is cured almost instantly. This is beautifully illustrated by Wolfsohn's statement that some patients were cured in a few minutes, others in several or many hours, and others after days of anxious observation, waiting for that psychologic moment to arrive. The mental attitude of the patient has everything to do with this so-called spontaneous cure.

I simply make this criticism because the ordinary practitioner will not take into consideration the fact that hysteria without an actual physical cause is not as a rule cured in this way, and as easily as those cases in which some physical violence has been demonstrated or sustained. I could add a number of almost similar results, but it would be a repetition of what has been set forth in this interesting and valuable paper.

These two points, then, should be added to the twenty-seven general rules laid down: First, that the physical condition of the patient must be perfect ere treatment is begun for spontaneous cure, and second, that the long hospital treatment makes it possible to distinguish between a hysterical case with actual physical trauma and a case of purely nervous trauma.

Henry L. Stick, M.D., Camp Greene, N. C.
Captain, M. C., U. S. Army; Camp Psychiatrist.

ACTION OF DIGITALIS AND ATROPIN, WITH ESPECIAL REFERENCE TO THE HEART

To the Editor:—Digitalis affects the heart mainly in two ways: 1. It stimulates the pneumogastric center in the medulla, the resultant inhibition lessening the number of beats of the heart by prolonging the pause in diastole. Relaxation of fibers is increased; added rest is secured. Inhibition of some impulses from auricle to ventricle occurs—hence its value in auricular fibrillation. 2. It affects the heart muscle directly, increasing the strength of the ventricular contractions.

Atropin, in sufficient dose, paralyzes the inhibitory terminations of the pneumogastric in the heart, and stimulation of this nerve therefore causes no change in the pulse after its administration. Drugs have no effect in stimulating the pneumogastric after atropin has been given in sufficient dose to paralyze the inhibitory terminations. What is the sufficient dose? Cushny says 1 mg. (about 1/65 grain), and that the administration of sufficient atropin to paralyze the pneumogastric involves unpleasant dryness of the throat and difficulty in swallowing. The usual therapeutic dose of from 1/150 to 1/100 grain would apparently be insufficient to cause the paralysis. There is some uncertainty about this, however, as the susceptibility of individuals varies greatly.

If we grant, however, that the therapeutic dose of atropin has this effect in causing the paralysis of the inhibitory apparatus of the pneumogastric, are we justified in using it when we are using digitalis? Before answering this question we must consider what we expect or hope to accomplish with atropin. I am thinking of its indications in the extensive and progressive type of bronchopneumonia, lately so common. There is an impression among many clinicians that these patients are often relieved of cyanosis after using atropin. The cyanosis may be due to a moderate narrowing of the bronchioles already filled with mucous secretion, as asserted by a recent writer. According to Auer in the *American Journal of Physiology*, atropin prevents death in guinea-pigs subjected to anaphylactic shock by preventing the stenosis of the bronchioles. In beginning pulmonary edema it is commonly believed to be of value and is said to have an action on the permeability of the capillaries of the lungs, stopping the outward flow of fluid from the blood. These claims are made for it by several who have had large series of cases during the recent epidemic, including Keeton and Cushman, and Ridge. If, in the doses commonly given, it affects the inhibitory mechanism of the heart, we still have the effect of digitalis on the heart muscle, which effect is not influenced by atropin.

The two drugs are commonly used without paying much attention to these considerations; but there seems to be sufficient reason for keeping them in mind more than is customary. It is quite possible that small doses of atropin may be used in persons not especially susceptible to its effects, without seriously interfering with digitalis therapy; at least that is my conclusion from the foregoing.

William E. McCollom, M.D., Brooklyn.
Assistant Visiting Physician, St. Mary's Hospital.

"THE EFFECT OF 'GROUND GLASS' ON THE GASTRO-INTESTINAL TRACT OF DOGS"

To the Editor:—The article in The Journal, Dec. 28, 1918, p. 2127, on "The Effect of 'Ground Glass' on the Gastro-Intestinal Tract of Dogs," reminds me of a peculiar case in my practice: About thirty-five years ago a minister brought to me a diaper recently removed from an infant about 30 months old. A small quantity of fecal matter on the cloth showed a number of small pieces of broken glass mixed with it. The child had found the glass on the floor and, as usual, put it into its mouth, and finally swallowed it. There was no blood on the diaper, and, as far as could be determined, no untoward effects resulted.

G. W. H. Kemper, M.D., Muncie, Ind.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INSTANCES OF LOW TEMPERATURE

To the Editor:—The temperature recorded in the following history seems to be about the lowest of which I can obtain any record. Will you tell me what is the lowest authentic temperature of which there is any record? A boy, 8 years old, with a severe pharyngeal diphtheria of eighteen days' duration, was admitted to the Rochester Municipal Hospital. He had received no antitoxin. The admission temperature was 99 F. In the next three days the temperature and pulse declined steadily, although not equally. Seven hours before death the rectal temperature was 91.8 F. Several thermometers were used and all agreed. Fifteen minutes before death the temperature rose to 94.4 F.

P. A. B., Rochester, N. Y.

Answer.—The lowest temperature on record, so far as we can discover, is that observed by J. J. Reincke (*Deutsch. Arch. f. klin. Med.* **16**:12, 1875) in a man who had spent part of the night outdoors, lying in a drunken stupor, exposed to a temperature of 32 F. At 8 a. m. the man's temperature by rectum was 75.2 F., and not until 1 o'clock in the afternoon of the following day did it return to normal. The man lived. Reincke also records the case of a man who jumped overboard from a transport, striking his head on a rock. He was picked up apparently dead, but vigorous attempts at artificial respiration proved successful. His rectal temperature was 91.7 F. Magnan (*Virchows Arch. f. path. Anat.* **53**:27, 1871) records the case of a drunken man whose rectal temperature was 79.8 F. Musser (General Diagnosis, 1900, p. 206) refers to a case of intermittent fever, with jaundice, in which the lowest recorded temperature was 91 F. He does not state whether the patient survived. It will be noted that these references are far from being recent. Perhaps some of the readers of The Journal may know of more recent references.

BENEDICT TEST—HILUM OF LUNG—KRÖNIG'S ISTHMUS

To the Editor:—1. In an article on diabetes which I read in The Journal, mention is made of the Benedict test. 2. and 3. In another article, reference is made to the lung hilum and to the isthmus of Krönig. As I have been unable to find in my books the meaning of these terms, I should appreciate your explaining them to me.

Luis Lazo Amiaga, M.D., San Salvador.

was properly excluded.

Liability for Injuries to Convulsive Patient—Evidence

(Connor v. O'Donnell (Mass.), 119 N. E. R. 446)

The Supreme Judicial Court of Massachusetts had here two cases: one brought by Mrs. Connor to recover damages from the defendant, a physician, for alleged negligence in his treatment and care of her after she had given birth to a child; the other, brought by her husband to recover consequential damages. The court, always referring to Mrs. Connor as the plaintiff, says that she filed specifications of the unskilfulness and negligence of the defendant, alleged in her declaration in substance as follows: The first specification alleged that the defendant negligently directed that the plaintiff, while suffering from convulsions following childbirth, be restrained and held in bed by holding her by her wrists, whereby her shoulders became dislocated and fractured; the second specification alleged that after the plaintiff's shoulders had been fractured and dislocated, the defendant failed to discover her injuries and negligently prescribed treatment which caused her great pain and resulted in permanent disabilities. The plaintiff testified that she went to bed at about 2 a. m., and was unconscious during the birth of her child; that she did not regain consciousness for a period of from twenty-four to forty-eight hours, and imme-

2. The hilum of the lung or hilum pulmonum is the depression on the mediastinal surface of the lung where the bronchus, blood vessels and nerves enter, and the reference in the article is to this region.

3. Krönig's isthmus refers to the apexes of the lungs behind and above the clavicles or in the area bounded by the clavicle and the borders of the trapezia, to the auscultation and percussion of which Krönig has called attention in the diagnosis of tuberculosis of the lungs.

DR. EDWARDS' *OLIVE* TABLETS

To the Editor:—Please advise me as to the composition of Dr. Edwards' Olive Tablets in the next copy of The Journal, but do not mention my name.

M.D., Chicago.

Answer.—These are purgative pills, and the claims under which they have been sold are either directly or inferentially misleading. The public has been given the impression that the pills owe their alleged virtue to the presence of olive oil. The American Medical Association's Chemical Laboratory made some cursory tests of the pills in 1913, and reported that they were essentially an aloes pill. These findings were substantiated by a more complete analysis made by the Connecticut Agricultural Experiment Station, which, in its report for 1914, declared that the pills contained dextrose, starch, aloes and ginger. A brief article on this product appears in the pamphlet, "Miscellaneous Nostrums," price 15 cents.

GERMICIDE IN THERMOMETER CASE

To the Editor:—There is a thermometer case that holds a small quantity of fluid to disinfect the thermometer while in the case. The use of alcohol in the case is *recommended* as the disinfecting fluid. Is alcohol an efficient disinfectant for this purpose? If not, what do you recommend?

C. R. Pickering, B.S., M.D., Muscoda, Wis.

Answer.—Various disinfectants have been recommended for use in the thermometer carrying case, the chief among them being formaldehyd and alcohol solutions. Formaldehyd is a slowly acting germicide and is irritant to some persons. Alcohol is probably as effective for the purpose as anything. When alcohol is employed, care should be taken that its strength be maintained between 50 and 80 per cent., otherwise its germicidal value is lessened; also the thermometer should be cleaned of all secretions before it is returned to the "aseptic" case. To be disinfected, the thermometer should remain *in* the alcohol solution at least thirty minutes, although a longer time is preferable. The case should be recharged frequently.

Society Proceedings

COMING MEETINGS

Southern Minnesota Medical Association, Mankato, Jan. 20-21.

SOUTHERN SURGICAL ASSOCIATION

Thirty-First Annual Session, held at Baltimore, Dec. 17-19, 1918

The President, DR. ISAAC S. STONE, Washington, D. C., in the Chair

Suture of Ruptured Kidney, with Report of a Case

DR. S. L. LEDBETTER, JR., Birmingham, Ala.: Early exploration is indicated in subparietal injury to the kidney, and suturing the ruptured kidney when possible is preferable to either nephrectomy or gauze packing. Nephrectomy should be reserved for those cases in which operation has been delayed and when the kidney is hopelessly damaged. Packing with gauze, when possible, is to be avoided on account of the delayed convalescence, the danger of secondary hemorrhage, and the possibility of infection.

Prostatectomy: Preparatory and Postoperative Treatment

DR. BRANSFORD LEWIS, St. Louis: I have adopted the suprapubic method as the operation of choice because it gives the better results. It is free from a number of momentous objections that pertain to the perineal operation, such as ineffectual urinary control, sexual disability, and urethrorectal fistula. While a one-stage suprapubic prostatectomy may be carried out with confidence and safety in a patient of middle age and good general condition, there is no doubt about the distinct advantages presented by the same operation done in two stages in the decrepit patient of advanced years and weakened resisting powers. The opportunity presented by the two-stage operation of establishing a firm adhesion between bladder and abdominal walls is scarcely less valuable than that of establishing suprapubic drainage. Infection of the loose connective tissues surrounding the bladder, with extensive suppuration, is one of the most serious dangers attendant on suprapubic work. Once established, such suppuration is difficult of control, and the condition may rapidly become formidable. The ounce of prevention consists in attaching the bladder firmly and permanently to the abdominal wall around the opening in the bladder by means of chromicized catgut sutures.

Spinal anesthesia is commended as serviceable by some operators, but I regard it as the most dangerous of all methods of anesthesia. I know of no deaths so far reported from the use of caudal anesthesia, although there have been instances in which physiologic effects have been observed.

DISCUSSION

DR. JOHN R. WATHEN, Louisville: The main thing in prostatic surgery is proper drainage and the avoidance of infection. I disagree with the statement that the in-dwelling catheter should remain in the urethra a considerable time. My experience has been that the in-dwelling catheter is not tolerated by the majority of patients for a considerable time, and some patients can hardly stand it at all. The suprapubic operation under local anesthesia is the operation of choice.

DR. ROBERT T. MORRIS, New York: After the suprapubic operation I like to fold the ragged fragments into place pretty well and pack them there with neat folds of iodoform gauze, leaving the end of the gauze protruding from the suprapubic wound; and for drainage I use little packs of sphagnum moss, allow the patient to turn on one side or the other, or abdomen, if he likes, and I depend on the capillarity of the gauze and sphagnum moss.

DR. FRANCIS REDER, St. Louis: A mortality following prostatectomy rests with the loss of blood. It is the constant bleeding in these cases that causes fatalities, and in the after-treatment of cases of prostatectomy I recommend the use of the Hagner bag for the control of hemorrhage.

DR. JAMES E. THOMPSON, Galveston, Texas: One of the most important tests as to how patients behave after operative procedures is the estimation of the blood urea.

DR. GEORGE A. HENDON, Louisville, Ky.: In suprapubic prostatectomy I pack the cavity from which the prostate has been removed lightly with iodoform gauze or plain gauze, allowing the ends to protrude from the suprapubic incision; but before doing so I put an ordinary Nélaton catheter into the bladder. The first twenty-four hours a lot of clots may form, but by irrigation with 6 or 12 ounces of warm boric acid solution, the lumen of the catheter is kept open and no clot is formed. All drainage takes place through the catheter in the urethra, and is collected by a urinal between the patient's leg. On the third day I remove the gauze packing, and all the drainage takes place below through the natural way. I have not had any suppuration or hemorrhages to make me dissatisfied with this method of treatment.

Irritable Bladder of Women

DR. CHARLES A. L. REED, Cincinnati: (This paper will be published in full in THE JOURNAL.)

Gauze Sponge Expelled Spontaneously from the Urinary Bladder

DR. G. PAUL LAROQUE, Richmond, Va.: Five years ago a woman was operated on and was told that the appendix and left ovary were removed and the uterus suspended. No drainage was employed. She remained perfectly well for five years and was then seized suddenly with agonizing bladder tenesmus, spasmodic incontinence of urine, and an enormous quantity of foul-smelling pus. Roentgen examination for stone was negative; there were no clinical evidences on examination. Cystostomy was not attempted on account of the violence of pain and the inability to hold water in the bladder. The body temperature varied from normal to 101 F.; the pulse varied from normal to 100. Vaginal examination detected a small mass in the right fornix.

There were no menstrual symptoms. On two occasions the patient had retention of urine, and the catheter withdrew on the first occasion a quart of foul-smelling pus containing urine, and a week later, when an attempt was made to catheterize her again, a piece of gauze was discovered in the urethra. This was pulled out and proved to be a surgical gauze sponge about 2 inches wide and 10 inches long. The symptoms immediately subsided. In a week's time she was well, cystostomy revealing a very small, almost completely healed fistula in the right side of the bladder. The mass could no longer be felt in the pelvis. In a week the patient left the hospital, and has remained perfectly well.

Malignant Papilloma of Gallbladder

DR. T. P. WARING, Savannah, Ga.: A woman, aged 42, had two attacks of puerperal insanity, one of them after an abortion. She had an attack of jaundice after the second attack of puerperal insanity. She has borne four children, three of them without trouble. The family history is negative as to cancer. The present trouble dates back three years, and starts with pain in the right hypochondrium and a feeling of relief on pressure. Three weeks before admission to the hospital, she felt a lump in the right side, followed a few days later by pain, which was not severe. There was no fever nor jaundice. The only symptom of cholecystitis was a constant feeling of indigestion. A distinct globular mass could be felt in the right hypochondrium, which was a little sensitive to pressure, but otherwise caused no discomfort. At operation a large gallbladder was found, rather dark in color and glistening; the walls were not very thick. Several masses could be felt in the gallbladder; and two small lumps along the cystic duct forming part of the tumor mass, apparently in the gallbladder itself, later proved to be enlarged lymph glands. The pathologist reported papilloma. The subsequent history bears out the malignancy of the papilloma, for although the dissection was clean and no other enlarged glands could be felt, the patient developed an obstructive jaundice three months later. This was relieved by establishing a hepaticoduodenal anastomosis over a rubber catheter, making use of the sinus wall to attach to the duodenum, covered and protected by the gastrohepatic and greater omentum. This gave absolute relief for four months. The patient declined further operation, and died two months later from the obstruction.

Congenital Diverticula of Intestine, with Tumor

DR. WILLIAM T. BLACK, Memphis, Tenn.: A fibromucous peritoneal polyp, weighing 4,260 gm., occurring in a woman, aged 59, was discovered during operation. This tumor sprang from the peritoneal coat of the tip end of an apparently congenital diverticulum in the lower sigmoid. A preoperative diagnosis was made of subserous uterine myoma, with cystic degeneration, or an ovarian tumor. The growth probably can be attributed to an embryologic condition or fetal "rest," or it might have followed a diverticulitis, ulceration or perforation of the diverticulum.

Resection of Cecum and Ascending Colon

DR. J. SHELTON HORSLEY, Richmond, Va.: I wish to call attention to the triangular space at the mesenteric border of the intestine which is sometimes infected by the operator before it is closed, and to the necessity of cleaning the bowel ends with antiseptics before suturing. A valve should be made when the small bowel is united to the large bowel. There is used a new operation based on these principles in which the end-to-end method is used and the ileum is projected into the end of the transverse colon and sutured in a manner similar to that used in my method of uniting the small bowel. In addition to this, in order to promote valve formation and increase safety, there is placed a row of interrupted mattress stitches of catgut. To relieve gas accumulation I suggest an enterostomy after the Coffey principle. I have done seven resections of the cecum and ascending colon in ten years. All these patients recovered from the operation satisfactorily. Two of the operations were for intussusception in infants, two for severe intestinal stasis, and three for hypertrophic tuberculosis. In one of the cases of tuberculosis a resection of several feet of diseased ileum was made after the cecum and ascending colon had been removed, thus making a double resection in this case.

Practical Considerations in Regard to Permanent Colostomies

DR. W. E. SISTRUNK, Rochester, Minn.: At present we are making a colostomy very similar to the one described by Mixter. This colostomy is, as a rule, made through a straight incision placed below and about 1 inch to the left of the umbilicus. It may be made through a low midline incision. The colostomy is made in a loop of the sigmoid flexure. After the loop has been lifted out of the abdominal cavity, an incision from 1½ to 2 inches long is made through its mesentery parallel to the direction of the blood vessels and extending upward nearly to the bowel. A second incision, about 1 inch long, is then made across the end of the first incision quite near the mesenteric attachment of the bowel. Two strips of gauze are placed in the upper end of the T incision which has been made, and when these are pulled apart a good sized opening is made through the mesentery. The two sides of the entire abdominal wall near the center of the incision are sutured through this opening in the mesentery. The remaining portions of the incision are then closed, a small bit of the bowel being included in two of the sutures to prevent the possibility of herniation of a loop of small intestine.

After removing the gauze, a glass rod or rubber tube is placed through the opening in the mesentery between the skin and bowel to serve later as a guide in cutting across the bowel. If necessary for gas distention, a small opening may be made in the bowel any time after twenty-four or forty-eight hours, and after five or six days the bowel is cut across completely with the cautery. As a rule, however, the patients pass gases very readily through the knuckle which has been brought up, and it is unnecessary to disturb it before five or six days. After the loop has been cut across it is found that the two ends of bowel are separated by the entire abdominal wall for a distance of from 1 to 2 inches. These ends protrude from 1 to 1½ inches above the skin. They may later be cut shorter if thought necessary.

Standardization of Rural Hospitals

DR. ISAAC S. STONE, Washington, D. C.: I am in favor of bringing the standard of all hospitals, whether large or small, up to that point which will afford the best service to the public and which will require the best medical and surgical training of the staff. Sufficient information has been collected to show the number of poorly equipped hospitals in all parts of the country, in towns and rural districts. Many of these hospitals are but little better than boarding houses without the essential equipment of house staff or laboratory, or, indeed, anything that justifies the name of hospital. It was suggested that all hospitals should be inspected by the health officer or commissioner of health, whether they are public or private institutions, and in case they are found up to the standard of requirement they should be duly licensed and required to send in a full report of the treatment of all cases during each year. I also favor state aid to rural hospitals when necessary, to provide hospital relief in country or remote outlying districts. Especial attention should be given to consideration of rural hospitals as social service centers and for the care of obstetric patients whose homes are remotely situated or who are unable to obtain competent professional attendance.

Treatment of Tumors of Upper Jaw with Cautery

DR. J. C. BLOODGOOD, Baltimore: Comparison of the results of operations for the removal of tumors of the upper jaw with the knife alone and results of the removal of identical tumors with the cautery discloses a decided decrease in the mortality. When we have accomplished cures it has been with less mutilation. Whether the actual number of cures has been increased cannot be stated at the present time. In many instances it is safer to remove the disease in stages.

It is remarkable how much can be done under local anesthesia alone. When a general anesthetic is necessary, chloroform, in my experience, seems to meet the indications best. It does not interfere with the use of the cautery. It is the best anesthetic when operations are performed in the region of the oral cavity. It should never be pushed to complete narcosis. The patient has no memory of pain, and although he is so lightly under the influence of the anesthetic that all reflexes are active, he remains more or less quiet. When chloroform is not pushed to complete narcosis, the danger seems practically eliminated, and the operations can be repeated at intervals of three or four days. In some of my cases there have been as many as fourteen operations. The pulse and blood pressure are recorded every five or ten minutes. The chloroform is rarely administered longer than one hour. When the cautery instead of the knife is employed, the operation can be discontinued at any moment.

The duration of the operation and the number of operations largely depend on the condition of the patient and the local extent of the neoplasm. When the cautery is employed it is possible to remove the tumor piecemeal and to destroy from the tumor tissue into the surrounding healthy tissue without danger of dissemination; while with the knife one must give the tumor tissue a wide margin and remove the entire mass *en bloc* at one operation. In the removal in stages with the cautery it is also possible to have microscopic control as an indication that enough has been done.

The new growth should be attacked with the cautery from two points: 1. One should burn the tissue at the border of the tumor. This not only destroys the infiltrating area, but excites in the healthy tissue beyond a granulation tissue which of itself is largely protective against secondary invasion, at least during the period of complete removal. 2. The second attack should be on the new growth itself, if possible, from the center out. These two methods of attack are varied according to the size of the neoplasm and its local growth, and the anatomic character of the surrounding uninvolved tissue.

Radium Therapy

DR. HOWARD A. KELLY, Baltimore: Some of the cases treated successfully with radium by me and my associates were: multinodular ovarian carcinoma; posterior mediastinal sarcoma, which had led to paraplegia; cervical Hodgkin's disease; universal Hodgkin's disease; medullary carcinoma of right breast and of glands of axilla and neck; extensive carcinoma of breasts; squamous cell cancer of larynx; extensive basal cell carcinoma of larynx causing obstruction; round cell sarcoma of tonsil and pharynx; unilateral tonsillar hypertrophy or round cell sarcoma; squamous cell epithelioma of mouth and of skin.

Treatment of Hodgkin's Disease

Dr. Curtis F. Burnam, Baltimore: During six years I have seen and treated more than 100 cases of Hodgkin's disease and malignant lymphoma. I advise against extensive operative removals. I employ radium treatment supported by rest in bed, forced feeding and iron. When radium is not available I urge the use of the roentgen ray. Better results are obtained when tissue examination is characteristic of lymphosarcoma than when it shows definite Hodgkin's disease. Also, in Hodgkin's disease the results are better when the polymorphonuclear leukocytosis characteristic of extensive Hodgkin's disease has not developed. Treatment is much more satisfactory in chronic than in acute cases. No routine treatment applicable to all cases can be prescribed. Each patient must be given individual attention. The best guide to treatment is to be found in the effects of the gland masses, the blood and the genral health of the patient. Gamma radiation at distances of from 1½ to 5 inches from the surface with amounts of radium varying from 500 mg. to several grams, the time of exposure being inversely proportional to the amount of radium employed, is indicated. The radiation should be carried out so that every affected part may receive adequate dosage, and the treatment should be repeated at intervals until all evidence of disease has disappeared.

The results obtained are highly encouraging. In cases in which lymphosarcoma was diagnosed, two patients have been well for more than five years, one with extensive neck, and one with abdominal, involvement; four have been apparently well for over three years, one with pharyngeal and neck involvement, one with mediastinal, one with tonsil, neck and groin, and one with neck and axillary involvement. One patient with mediastinal and neck involvement has been well for four years, and two patients for more than three years. One of these had neck, axilla, groin and iliac, and the other groin, axillary, neck and mediastinal involvement.

Reconstruction of Uterus

Dr. Charles R. Robins, Richmond, Va.: The blood supply of the uterus and the tubes entering from the sides makes it possible to remove as much of the intervening portion as may be necessary. The only thing necessary to leave is a continuous cavity from the tubes to the external os. This operation can most frequently be practiced in the treatment of fibroids. It is not intended that it should be generally used, because the cases in which it is indicated or possible are comparatively few. However, in young unmarried women and in married women who have not borne children, the operation would be justified often in whatever risk we might entail of unsatisfactory results or later development of fibroids.

Gynecologic Pelvic Drainage

Dr. J. Wesley Bovée, Washington, D. C.: There is still much need for the use of drainage material in pelvic surgery, preferably by the vaginal route. For this purpose I prefer to use paraffin-stearin gauze (Fisher). The chief advantages claimed for it are its nonadhesion to the tissues and consequent easy and painless removal, and its permiting endothelialization of denuded areas of pelvic peritoneum without the formation of lasting adhesions.

Visceroptosis

Dr. Charles L. Bonifield, Cincinnati: Some of my cases of ileosigmoidostomy have been under my observation for five years and are still doing well. In none have I found it necessary to remove the colon, although the colon was removed in one case by another surgeon while I was out of the city. I have always felt that his youthful enthusiasm led him to do an unnecessary operation. Some of the patients have had slight trouble with feces getting into the colon above the anastomosis, but in none of them has it been serious, and as time went on it became less and less frequent. I performed cecosigmoidoscopy on three patients, but my results were not as satisfactory as those obtained from ileosigmoidostomy. A large part of the fecal current continued to flow through the old channel and produced the old symptoms. The result of my study and experience with this condition would lead me to believe that many cases require no surgical treatment; that others require operative treatment only for the pelvic condition; others will require fixation of the kidney as well. For the type in which colonic stasis is most severe, ileosigmoidostomy is the best procedure yet devised; the colon should be removed at a second operation, and only when symptoms make it necessary.

Treatment of War Wounds in the Hospitals of the American Expeditionary Forces

Col. Charles H. Peck, M. C., U. S. Army: The scientific treatment of war wounds was developed greatly during the second and third years of the war in the French, British and Belgian services. It passed from the stage in which all wounds suppurated profusely, to the discovery of the Carrel-Dakin method of chemical sterilization, and later to the method of early "débridement," healing by first intention in a large percentage of cases. Successful early débridement depends on well equipped operating hospitals near the fighting line; on conditions of combat and transport which permit of evacuation of the wounded from the field to the operating hospital in less than fifteen hours, and on an adequate number of skilled operating teams to care for all wounded promptly in time of battle. These conditions have been met in the French and British services by the evacuation hospital and the casualty clearing station, established from eight to twelve miles behind the lines, and by large numbers of mobile operating teams which were moved as needed to meet the changing demands of battle at different points.

The American service was developed on similar lines, but soon had to meet the changed condition of open warfare as contrasted with the fixed line of trench fighting which had existed for more than two years. In open warfare the frequent delays in evacuating wounded from the field, the difficulty of providing for early operation near the front for all cases needing it, the necessity of using small mobile hospitals, and improvised operating units in field hospitals, instead of well organized evacuation hospitals, has interfered seriously with the ideal treatment of war wounds. In spite of these difficulties and new problems, the Medical Department of the American Expeditionary Forces has met the situation in a masterly way; has provided adequate hospitalization and skilled surgeons for the care of the wounded, and has performed this gigantic task for an army of 2,000,000 men with a minimum amount of confusion and delay. The excellent morale and physical condition of returning overseas wounded is evidence of the efficiency of the service.

Limitations of Cesarean Section

Dr. E. Gustav Zinke, Cincinnati: Abdominal cesarean section is positively indicated in all cases in which the child cannot be delivered by any means, dead or alive, through the parturient canal. The operation is not only justifiable, but almost imperative, and should be selected as the best mode of delivery in all cases of deformed, narrow and contracted pelves in which the diameters are so reduced in size as to forbid the test of labor, the use of the high forceps, or version of the child on the feet. Abdominal hysterectomy will furnish the best results for both mother and child in all cases of placenta praevia in which the hemorrhage is either profuse or moderate and protracted, and beyond control. When an elongated or unobliterated cervix or rigid os complicates placenta praevia, cesarean section is all the more imperative. Fortunately, in the majority of these cases, the hemorrhage may be arrested effectually; elongated cervices are quite rare; and an unobliterated cervix, or rigid os usually yields to well applied tamponade or the careful and skilful use of the rubber bag. Cesarean section may be chosen as a just procedure in cases of sudden and profound eclampsia, or severe toxemia in a primigravida when associated with an elongated or unobliterated cervix, acute suppression of the urine, general edema, and cyanosis. In the milder cases of this disease, when the life of the child is considered equally as important as, or more important than, the life of the mother, the operation finds a justification. This fact, more than anything else, renders cesarean section almost entirely unnecessary in the treatment of eclampsia. In cases of asthenia, both lives may be saved occasionally by performing this operation. In the past, cesarean section was not resorted to often enough; at present, it is performed too frequently. Cesarean operation should never be performed without the consent of an experienced consultant of recognized standing and an authority on obstetrics.

Judging from the favorable results reported by men who have performed cesarean section when the patients showed symptoms of infection, one is led to believe that the cases in which recovery did take place were not really of the type classified as true septic infection, but rather that they were cases of mild sapremia. A strictly septic infection is always systemic and almost invariably fatal; a sapremia is, usually, local in character, and the patient recovers notwithstanding the cesarean section.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

December, 1918, **16**, No. 6

1 *Standards for Growth and Nutrition. L. E. Holt.—p. 359.
2 Experimental Research on Effect on Gastro-Intestinal Tract of Excretion of Poisons, Considering the Age of Animals. N. Okubo.—p. 376.
3 New Apparatus for Puncture of Superior Longitudinal Sinus. A. Goldbloom.—p. 388.
4 Tertian Malaria in Two Infants Under Two Months of Age. C. J. Bloom.—p. 391.
5 Recent Work in Anatomy, Physiology and Pathology of Childhood. J. B. Holmes.—p. 393.

1. Abstracted in THE JOURNAL, July 20, 1918, p. 221.

American Journal of Insanity, Baltimore

October, 1918, **75**, No. 2

6 *Central Canal of Spinal Cord. S. P. Kramer.—p. 193.
7 *Content of Schizophrenic Characteristics Occurring in Affective Disorders. P. Greenacre.—p. 197.
8 Food, Service and Conservation in Provincial Hospital. J. C. Mitchell.—p. 203.
9 *Pellagra at Connecticut Hospital for Insane. W. C. Sandy.—p. 211.
10 Summary of 106 Cases of Mental Disorder of Unknown Etiology Arising in Fifth and Sixth Decades. E. T. Gibson.—p. 221.

6. **Central Canal of Spinal Cord.**—Of 206 spinal cords examined by Kramer the central canal was open throughout in fifteen instances, or 7.23 per cent. He has shown in previous studies how it is possible for a poison or an infective agent to reach the meningeal surface of the cord and the central gray matter and leave the rest of the cord unaffected; that it is possible for disease to spread through the medium of the cerebrospinal fluid upward, through the central canal and by diffusion therefrom into the central gray matter. Poliomyelitis is a disease of childhood. An ascending paralysis may also occur in adults though more rarely than in children. Kramer has also examined the cords from four cases of poliomyelitis in children and found the central canal patent in all of them.

Experiments were also performed in which it was sought to produce the condition found in acute poliomyelitis by injection into the spinal canal of dogs of small doses of dilute, 2 per cent. hydrocyanic acid (1 c.c.). On making this injection a motor paralysis of the posterior extremities, usually more marked on the left side, is produced. Such animals have been kept alive for a varying number of days, the motor paralysis persisting, sensation remaining unaffected. When the cords of these animals are examined, lesions typical of poliomyelitis are found. There is chromatolysis of the anterior horn cells, acute inflammatory exudate throughout the gray matter and in the perivascular lymph spaces, the central canal filled with a like exudate and a replacement fibrosis in the anterior horns.

7. **Content of Schizophrenic Characteristics.**—Summarizing in general review the content of the schizophrenic characteristics in cases showing dominantly an affective reaction, Greenacre emphasizes: (1) the prominence in depressions of the symptom constellation of ideas of reference with delusions of persecution and condemnatory hallucinations; (2) an analogous projection of the affect in the varied and dramatic hallucinations; the symbolistic attitudinizing, and the somewhat egotistical and constantly changing ideas of reference of the elation; (3) the determination of the content of the distortions of body sense and of the odd, fixed antic behavior by the underlying conflicts and personal difficulties.

9. **Pellagra at Connecticut Hospital for Insane.**—Five cases of pellagra are cited by Sandy. The first case, one of dementia praecox, paranoid form, after a hospital residence of over two years, presented the skin and mucous membrane signs of pellagra of a mild type, following persistent dietetic indiscretions. The physical signs of pellagra promptly disappeared when the patient was placed on a rational diet, there still remaining, however, a few quite characteristic sequels. The second case, also one of dementia praecox, but hebephrenic form, after a hospital residence of about two years, during a part of which time she had to be tube fed, developed the characteristic skin and mucous membrane appearances of pellagra. She was also tuberculous and finally died, the pellagra symptoms becoming more and more marked. The third case, one of dementia praecox, after some years of hospital residence in several institutions, developed pellagra symptoms. For several months prior to this she had persistently refused food and was tube fed. She failed to respond to treatment, death occurring about a month after the appearance of the characteristic symptoms.

The fourth case was one of dementia praecox. The patient had a positive blood Wassermann and had been given a series of mercurial injections. One month following the last injection the Wassermann had become negative, and about five months after admission, the peculiar skin eruption and mucous membrane changes made their appearance. This patient also developed an intractable diarrhea and died in about ten days after the eruption was first noticed. The fifth case was a rather high-grade feebleminded female with congenital absence of the palate and a positive blood Wassermann. Following a hospital residence of over five years, she developed the peculiar and symmetrical scaliness of the backs of the hands, associated with inflammation of the oral and genital mucous membranes and gastric disturbances. She had received mercurial injections, the last dose being given about two weeks before the development of the physical signs resembling pellagra. The skin and mucous membranes improved under treatment but the patient finally died a month later from cardiac degeneration. The patient appeared well nourished and there was considerable subcutaneous fat even at the time of death.

American Journal of Physiology, Baltimore

December, 1918, **47**, No. 3

11 *Chemical Stimulation of Cerebral Cortex. S. S. Maxwell.—p. 283.
12 *Blood-Pressure Curve Following an Intra-Spinal Injection of Epinephrin. J. Auer and S. J. Meltzer.—p. 286.
13 Metabolic Gradient Underlying Colonic Peristalsis. W. C. Alvarez and E. Starkweather.—p. 293.
14 *Blood Volume By Acacia Method. W. J. Meek and H. S. Gasser.—p. 302.
15 Intracellular Respiration. Rates of CO_2 Production by Starved and Fed Paramecia: Possible Relation to Rates of Oxidation in Unfertilized and Fertilized Sea Urchin Egg. E. J. Lund.—p. 318.
16 *Two New Factors in Blood Coagulation-Heparin and Pro-Antithrombin. W. H. Howell and E. Holt.—p. 328.
17 *Influence of Secretin on Number of Red and White Corpuscles and Ferments and Sugar Content of Blood. B. Fujimoto.—p. 342.

18 Influence of Ingestion of Amino-acids, Adequate and Inadequate Proteins on Production of Catalase. W. E. Burge.—p. 351.
19 Regeneration of Blood Serum Proteins. Influence of Fasting on Curve of Protein Regeneration Following Plasma Depletion. W. J. Kerr, S. H. Hurwitz and G. H. Whipple.—p. 356.
20 Id. Influence of Diet on Curve of Protein Regeneration Following Plasma Depletion. Id.—p. 370.
21 Id. Liver Injury Alone; Liver Injury and Plasma Depletion: The Eck Fistula *Combined with Plasma Depletion*. Id.—p. 379.
22 Normal Growth of White Leghorn Chickens. G. D. Buckner, R. H. Wilkins and J. H. Kastle.—p. 393.
23 *Secretin. Number of Red and White Corpuscles in Circulating Blood During Digestion. A. W. Downs and N. B. Eddy.—p. 399.
24 *Possible Periodic Variations in Extent of Knee-Jerk in Women. J. L. King.—p. 404.

11. **Chemical Stimulation of Cerebral Cortex.**—Maxwell found that tetraethylammonium chlorid is *not only a stimulant* for medullated nerves, but that it is a more *powerful stimulant* of gray matter than creatin though less powerful than strychnin. Without any exception the contractions resulting from the action of the tetraethylammonium chlorid preceded by several minutes those caused by the creatin on the opposite side. In every instance a 1 per cent. solution of strychnin applied to the cortex on one side brought about the characteristic twitchings and convulsive contractions more promptly than the concentrated solution of tetraethylammonium chlorid applied to the other side. In a few experiments comparisons were made between tetraethylammonium chlorid and sodium citrate or sodium oxalate. In none of these was there any indication that the citrate or oxalate had a stimulating effect.

12. **Effect of Epinephrin on Blood Pressure.**—Intraspinal injections of 1 c.c. or 1.5 c.c. of epinephrin in the lumbar region of monkeys cause a rise of blood pressure distinctly different in character from the curve obtained after the intravenous injection of epinephrin. The curve of blood pressure following an intraspinal injection is generally characterized by a slow rise from the original level to the maximum height; by a plateau-like duration of the maximum; by a slow fall to the blood pressure which prevailed before the injection of epinephrin. An intralumbar injection causes a much more lasting effect on the rise of blood pressure than an intravenous injection. As a rule, after intraspinal injections the pressure at the end of the pressor effect has not been observed to fall below the original level. In human beings an intralumbar injection can be carried out with greater safety and certainty than in monkeys, hence the advisability of such studies in clinical physiology is quite evident.

14. **Blood Volume by Acacia Method.**—This method depends on an injection of a known amount of acacia into the blood stream and a determination of the dilution undergone by the acacia after time for mixing with the blood has been allowed. The acacia has been determined as furfurolphloroglucid by the method of Korber. The injection of 4 c.c. of 20 per cent. acacia per kilogram has been shown to be harmless to the animal; neither does it expand the blood volume during the time necessary for a determination.

16. **Blood Coagulation: Heparin and Pro-Antithrombin.**—The two new *fibrin* factors discovered by Howell and Holt are: First, a phosphatid, not previously described, which exists in *various* tissues but is found in greatest abundance in the liver. This phosphatid is designated as heparin to indicate its origin from liver. It inhibits coagulation, partially or completely according to the concentration. Second, a *substance* present in blood plasma and blood serum which is converted into antithrombin by a *reaction* with heparin. Just as in plasma and serum there is a mother substance from which thrombin is formed, so there is an antecedent substance from which antithrombin is *formed*. By analogy this substance is designated as pro-anti*thrombin*. Prothrombin is activated to thrombin by calcium, the pro-antithrombin is activated to antithrombin by heparin. Heparin may be obtained from lymph glands and it has been detected by its reactions in the uterine mucous *membrane*. It is present in largest amounts in the liver, especially the dog's liver. Heparin inhibits clotting mainly by preventing the activation of prothrombin to thrombin. It acts as an antiprothrombin rather than as an antithrombin. The action of heparin in preventing the activation of prothrombin and in causing the activation of pro-antithrombin is not destroyed at a temperature of 100 C. Pro-antithrombin in blood plasma is destroyed promptly by heating to 70 C. and more gradually by prolonged heating at lower temperatures, 60 C. Pro-antithrombin may *be precipitated uninjured from blood plasma by* acetic acid or by ammonium sulphate added to one-half saturation.

On the theoretical side, it is suggested that heparin and *pro-antithrombin* are normal constituents *of the* circulating blood (*not demonstrated for the heparin) and together fulfill* the function of safeguarding the *fluidity of the blood*, that is to say, of preventing intravascular clotting. The pro-antithrombin by its conversion to antithrombin provides a protection against any small quantities of thrombin that may arise in the circulating blood (metathrombin formation). The heparin in addition to functioning as a specific activator to pro-antithrombin exerts an inhibiting influence on the conversion of prothrombin to active thrombin. When blood is shed or when in other ways thromboplastic substance (cephalin) is added to the *blood the protection afforded by* the heparin is overcome and thrombin is *formed in amounts sufficient to cause clotting*. It is suggested by the authors *that variations in the amount of heparin in the* blood may suffice to explain *some of the known abnormalities in coagulation*, hemophilia, for example.

17. **Effect of Secretin Injections in the Rabbit.**—Fujimoto found in his experiments *that secretin, when injected subcutaneously, produces an increase* in the number of red and white corpuscles in the *circulating blood of rabbits, as Downs* and Eddy proved. The *hypodermic injection* of 1 c.c. of secretin causes an increase in the catalase content of the blood. Neither increase nor decrease in the diastase, glycolytic ferment and sugar of the blood was observed after the hypodermic injection of 1 c.c. of secretin.

23. **Blood Count During Digestion.**—During digestion there occurs an increase in the number of both the red and white corpuscles per unit volume of blood. Downs and Eddy found that these changes are comparable with the effects produced by the experimental administration of secretin. The source of the increased corpuscle content of the blood both in digestion and after the administration of secretin is an increased rate of production of new cells by the bone marrow. The similarity between the differential leukocyte counts in digestion and after the administration of secretin is additional evidence of secretin being the cause of the increase in the number of corpuscles during digestion.

24. **Periodic Variations of Knee-Jerk in Women.**—If the knee-jerk may be taken as a physiologic index of the tone of the nerve centers, the evidence obtained by *King points in* the direction of the conclusions, that there is a period of hyperexcitability immediately preceding, accompanying or following menstruation and that there is then a tendency toward a fall and an approach to an intermenstrual average.

Annals of Otology, Rhinology and Laryngology, St. Louis

September, 1918, **27**, No. 3

25 Aviation Service of Medical Department of Army. T. C. Lyster.—p. 851.
26 Otolaryngology in Army Medical Service. N. H. Pierce.—p. 856.
27 Early Laryngology in Philadelphia. J. S. Cohen.—p. 862.
28 Surgical Pathology of Mastoid. J. C. Beck.—p. 869.
29 New Camp Disease of Larynx: "Pneumococcus Ulcerative Laryngitis." F. D. Owsley.—p. 874.
30 Value of Ear Examination to Neurologist. I. H. Jones.—p. 881.
31 Types of Mastoid Structure with Reference to Their Differentiation By Means of Stereoradiography. F. N. Bigelow.—p. 887.
32 Influenza in Switzerland. J. Holinger.—p. 968.
33 Sinus Thrombosis Which Presented Unusual Difficulties in Diagnosis. E. R. Faulkner.—p. 970.
34 Leukocytosis of Spinal Fluid *in Diagnosis of Meningitis*. C. E. *Perkins*.—p. 974.
35 Benign Neoplasms of Nasal Septum. G. W. Mosher.—p. 981.
36 Radium in Diseases of Ear. T. J. Harris.—p. 986.

Boston Medical and Surgical Journal

Dec. 26, 1918, **179**, No. 26

37 Influenza Among Children As Seen in Hospital Ward. F. B. Talbot.—p. 779.
38 Influenza Among Children As Seen in Private Practice. A. A. Howard.—p. 783.

39 Epidemic Meningitis Situation at Camp MacArthur. L. S. Medalia. —p. 787.
40 Continuous Inhalation of Oxygen Gas in Pneumonia and In Other Diseases. A. N. Blodgett.—p. 798.
41 Loss of Faith As a Woeful Outcome of Today's Specialism. B. Robinson.—p. 799.

Bulletin of Johns Hopkins Hospital, Baltimore

December, 1918, **29**, No. 334

42 *Aseptic End-to-End Anastomosis of Intestine. E. G. Grey.—p. 267.
43 Anomalies of Pulmonary Veins. P. B. MacCready.—p. 271.
44 *Relation of Supplying Ovary to Causation of Sex. J. G. Murray, Jr.—p. 275.
45 Piston Action of Vertebral Column Developed in Certain Types of Cranial Fractures. N. W. Sharpe.—p. 281.

42. **Aseptic Anastomosis of Intestine.**—Grey's paper is based on the results obtained from using the bulkhead suture (Halsted) in thirty-seven dogs. A new wire release ligature and a bolus of fibrin which is easily sterilized have been substituted for the paper cones. Specimens were secured following the operations at intervals varying from a few hours to 106 days. A study of the process of healing shows the following points: The process of repair in the bulkhead suture may, under favorable circumstances, lag but little behind that noted in the plain end-to-end anastomosis. On the average, however, the healing is a little slower in the former. A large inturn may not materially lengthen the period of regeneration, provided that the two inverted bowel ends remain about equal in size. The size of the inturn remaining after several weeks varies greatly from specimen to specimen. Frequently very little inverted bowel is found at this time. As a rule, there is a considerable delay in the repair of the mucosa when the two parts of the inturn are of unequal length, owing to poor approximation or to an inequaltiy in the necrosis on the two sides. This, however, does not appear to affect the function of the intestine. No striking difference was noted in the rate of repair between bulkhead sutures in which the cautery had been used and those in which the knife had been substituted for it. Stitches which puncture the epithelium usually delay the healing of the latter. Frequently such sutures carry a prolongation of the epithelium down into the deeper layers. Such adenoma-like prolongations may weaken the line of union where only one layer of stitches has been inserted.

44. **Relation of Supplying Ovary to Causation of Sex.**—The records of some 17,500 deliveries occurring in the Obstetrical Clinic of the Johns Hopkins Hospital from September, 1896, to March, 1918, were searched by Murray for suitable cases by which the principal theory advanced by Dawson could be tested. All those cases in which the location of the corpus luteum was actually demonstrated at cesarean section, at laparotomy for therapeutic abortion, at laparatomy within two weeks after delivery, or at postmortem examination, and in which there was no question as to the sex of the child, were tabulated. In all, seventy-five suitable observations were made on seventy women, five women each having two pregnancies. The corpus luteum was found to be in the right ovary in thirty-eight of the cases, and in the left ovary in thirty-seven of the cases. In 68 per cent., or in twenty-six, of the cases in which the corpus luteum was located in the right ovary the child was male, while in the remaining 32 per cent., or twelve cases, the child was female. On the other hand, in 57 per cent., or in twenty-one, of the cases in which the corpus luteum was located in the left ovary the child was male, while in the remaining 43 per cent., or in sixteen, of these cases the child was female. In this series there were forty-seven male and twenty-eight female children, 63 per cent., and 37 per cent., respectively. For the forty-seven males the corpus luteum was found in the right ovary in twenty-six, or 55 per cent., and in the left ovary in twenty-one, or 45 per cent.; while for the twenty-eight females the corpus luteum was found in the right ovary in twelve, or 43 per cent., and in the left ovary in sixteen, or 57 per cent.

From these figures Murray concludes that Dawson's theory cannot be correct, and, considering that the majority of the children in this series of cases are male, it is also clear that babies of either sex result in about equal numbers from the fertilization of an ovum from either ovary. Furthermore, clinical evidence shows that the determination of sex is probably not due to any factor present in the unfertilized ovum. The "chromosome theory" must be considered the only explanation of the causation of sex at present acceptable. The sex of an unborn child cannot be foretold, nor can either sex be produced at will, by any rules known at present.

California State Journal of Medicine, San Francisco

December, 1918, **16**, No. 12

46 Intracranial Complications of Diseases of Ear, Nose and Throat. Report of Cases with Necropsy Findings. H. Hastings.—p. 520.
47 Dispensary Treatment of Diabetics. A. S. Granger.—p. 524.
48 Prophylactic Treatment with Silver Nitrate for Blennorrhea Neonatorum. A. B. Spalding.—p. 526.
49 Acute and Subacute Unilateral Infectious Nephritis Without Pyuria from Affected Side. R. V. Day.—p. 528.
50 Results from Pertussis Vaccine. B. J. Condit.—p. 529.

Florida Medical Association Journal, St. Augustine

November, 1918, **5**, No. 5

51 Circulation. D. Forster.—p. 79.
52 Endocarditis. R. R. Niblack.—p. 80.
52 Anatomy of Circulatory Apparatus. J. E. McGunagle.—p. 82.
53 Indications for Hysterectomy. H. Crutcher.—p. 82.

Georgia Medical Association Journal, Atlanta

November, 1918, **8**, *No. 7*

54 Thrombo Angiitis Obliterans. Report of Cases. S. J. Sinkoe. —p. 131.
55 Nasal Cases Probably Due to Syphilis. D. Roy.—p. 137.
56 Tragic Complications of Stomach and Duodenal Ulcer. E. G. Jones.—p. 144.
57 So-Called Marginal Eczema. C. Swanson.—p. 148.

Iowa State Medical Society Journal, Des Moines

Dec. 15, 1918, **8**, No. 12

58 Pneumonia and Its Complications at Base Hospital Camp Dodge. J. L. Miller.—p. 419.
59 Pathology and Diagnosis of Diseases of Hematopoietic System. W. E. Sanders.—p. 423.
60 Therapeutic Aspects of Diseases of Hematopoietic System. F. J. Rohner.—p. 426.
61 Tuberculosis. J. W. Kime.—p. 431.
62 Epidemiology of Influenza. J. H. Hamilton.—p. 436.

Journal of Laboratory and Clinical Medicine, St. Louis

December, 1918, **4**, No. 3

63 Epidemic of "Spanish Influenza" at Camp A. A. Humphreys, Va., During September and October, 1918. I. W. Brewer.—p. 87.
64 *The Salicylates. Specificity of Salicylate in Rheumatic Fever. P. J. Hanzlik, R. W. Scott and P. C. Gauchat.—p. 112.
65 Clinical Manifestations of Empyema. W. T. Vaughan.—p. 123.
66 Cocaine Poisoning. Report of Case with Necropsy. E. Kellert. —p. 129.
67 *Acute Suprarenal Insufficiency. Report of Case. W. Boyd.—p. 133.
68 Convenient Dilution Chart of Use in Serologic and Other Tests in Which Varying Quantities of Reagents are Employed. L. B. Taber.—p. 138.
69 Modification of Wassermann Test. C. N. Callary.—p. 140.

64. **Specificity of Salicylates in Rheumatic Fever.**—A study of the comparative effects of nonsalicyl and salicyl medication made by Hanzlik and his associates does not show that salicylate possesses any unusual action or peculiar specificity in rheumatic fever. Prompt, though partial, relief was obtained in the majority of the patients receiving drugs other than salicyl. This is true for both early and late symptoms of the disease. In some of the patients the symptoms persisted despite salicyl medication, and in at least four cases (two of nonsalicyl-salicyl series and two of salicyl) the condition recurred shortly after salicyl treatment. In those patients in whom the symptoms persisted, although considerably moderated, after treatment with nonsalicyl antipyretics and analgesics, salicyl appeared to give more permanent relief. On the other hand, in two of the patients the fever persisted in spite of the salicyl medication. In some of the patients the persisting antipyretic effect during salicyl medication (although other symptoms of the disease were present) may be due to the retention or delayed action of the nonsalicyl antipyretic. With four of the nine patients unquestionably no effective and permanent relief from the symptoms of pain, fever, swelling of the joints, and general discomfort, was obtained until salicylate was administered.

Eliminating the elements of time, rest, and natural recovery, it appears that the relief of later symptoms is brought about more effectively and permanently by salicyl than by combinations of drugs whose pharmacologic actions are similar, but different chemically. The favorable reports of J. L. Miller with foreign protein and rest alone, and numerous recurrences of the disease in patients repeatedly treated with salicylate in large doses, lead the authors to the conclusion that salicylate possesses no thoroughly demonstrated specific action in rheumatic fever. It is no more than a symptomatic remedy which can be administered safely in very large doses, and represents a fortunate combination of both antipyretic and analgesic qualities which makes it much more suitable, and, also desirable for the treatment of rheumatic fever than combinations of opiates and various antipyretics. The injurious effects of salicylate on renal function and the kidney might be raised against the promiscuous and unwarranted use of the drug, but its efficiency and desirability as a symptomatic remedy in rheumatic fever may be regarded as outweighing the seriousness of these disturbances.

67. **Acute Suprarenal Insufficiency.**—The patient was 38 years of age, performing the more or less arduous duties of a military training camp. Early one morning he was found in a semiconscious condition in his room. A few hours later he was admitted to the hospital. By this time he was sinking into a state of coma. The picture was one suggestive of cerebral hemorrhage. The limbs were rigid, the reflexes gone, and the pupils distinctly dilated. The face and hands were cyanosed. The temperature was 99 F. Urine was normal. Cerebrospinal fluid showed no change and gave a negative Wassermann reaction. The patient died two and a half hours after admission. The clinical course was thus apoplectiform in type.

The necropsy was performed within two hours of death. The only organs exhibiting any marked pathologic change were the suprarenals. These were almost entirely destroyed, and converted into structureless, amorphous, yellowish masses, firm in texture, and considerably larger than the original glands. On the right side no trace of suprarenal tissue, either cortex or medulla, could be found. On the left a narrow strip of gland not more than 2 mm. in width was present at one point. This consisted entirely of cortex, the cells of which contained a lipoid substance which stained red with Scharlach R, but which was not anisotropic. The remainder of the gland consisted of areas of necrosis surrounded by the endothelial and giant cells characteristic of tuberculosis. No trace of medullary substance remained. Attached to the caseous mass was a small nodule which showed the microscopic structure of a sympathetic ganglion. The nerve cells and fibers of this ganglion, stained by various methods, showed no abnormality, but there appeared to be some increase of fibrous tissue.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, 1918, **12**, No. 4

70 *Application of a Concentrated Solution of Magnesium Sulphate to Scalds and Burns. S. J. Meltzer.—p. 211.
71 Transparent Celluloid Renal Onconometer or Plethysmograph. E. W. Schwartze.—p. 215.
72 *Experimental Investigation of Cause of Early Death From Arsphenamin, and of Certain Other Features of Pharmacologic Action of Substance. D. E. Jackson and M. I. Smith.—p. 221.
73 *Mode of Action of Certain Stimulants in Increasing and of Certain Depressants in Decreasing Oxidation. W. E. Burge.—p. 243.
74 Adenine Mononucleotide. W. Jones and R. P. Kennedy.—p. 253.

70. **Application of Magnesium Sulphate to Scalds.**—Meltzer records results of experiments with external application in burns of a concentrated solution of magnesium sulphate carried out several years ago; the experiments were repeated since and similar results were obtained. The experiments were made on noninjured and nonshaved rabbits' ears. The animal was deeply anesthetized. About one third of each ear was submerged for a short period in hot water. Then the water was removed and one ear was submerged in a 25 per cent. solution of epsom salt (1 mol. $MgSO_4$+7 mol. of water) and the other ear was submerged in a solution of sodium chlorid (either 0.9 or 6 per cent.). The ears were kept submerged in these solutions for about two or three hours, the solutions being changed two or three times during this period. The experiments with submersion in water of temperatures between 56 and 63 C. have always shown that the inflammation of the ear which was submerged in $MgSO_4$ was undoubtedly retarded or nearly completely prevented.

Meltzer has also had occasion to see cases of burns in human beings. First and second degree burns were invariably arrested in their development when molecular solutions of $MgSO_4$ were applied early. Third degree burns, as a rule, ran a more favorable course under application of $MgSO_4$ than under any other treatment. Higher concentrations than 25 per cent. seem to exert a still better influence. The favorable action of the application of $MgSO_4$ in advanced stages of burns of second and third degree is less striking, especially on account of the infection present; but even in this stage it seems to exert a favorable influence and according to Meltzer ought to be used either in combination, or alternatingly, with antiseptics.

72. **Cause of Early Death from Arsphenamin.**—The earliest toxic symptoms noted by Jackson and Smith consisted in a dilatation of the heart, perhaps mainly of the right side at first, a progressively increasing pulmonary blood pressure, and a slow, gradual, but not severe, fall of the systemic pressure. The cause of this rise in pulmonary arterial tension they believe to be due partly to the alkalinity of the solutions of arsphenamin used, and partly to the specific action of the drug itself. With large toxic doses the right heart may have to contract against a pulmonary pressure increased by 100 per cent. above the normal, while at the same time the left ventricle may be contracting against a systemic pressure reduced by 25 to 50 per cent. below the normal. These peculiar conditions may tend to establish a state of increased irritability and instability in the heart, and in rare instances delirium cordis may result. The reactions of the internal organs when arsphenamin is injected are variable, and the reasons therefore are obscure. Apparently both central and peripheral influences are concerned. As a rule, oncometric tracings of the spleen and intestinal loop show a dilatation, while the kidney usually contracts, sometimes in a most vigorous fashion. The toxicity of arsphenamin is not increased by the breathing of high concentrations of carbon dioxid, nor by the injection of calcium hydrate, calcium lactate, or of monosodium phosphate. A number of intermediary compounds occurring during the process of manufacture of arsphenamin were studied by Jackson and Smith. None of these is very poisonous and they cannot account for the variable toxicity of different samples of arsphenamin which may or may not contain traces of one or more of these. The suggestion is made that in those cases in which severe, acute, toxic symptoms suddenly manifest themselves, either during or shortly after the intravenous injection of arsphenamin, tyramine is more likely to be of benefit to the patient than is any other known drug.

73. **Increasing and Decreasing Oxidation.**—Evidence is presented by Burge to show that depressants such as the narcotics decrease oxidation which may be the cause of the depression by producing a decrease in catalase, while stimulants such as caffein and theobromin produce an increase in oxidation which may be the cause of the stimulation by producing an increase in catalase. The fact that the action of caffein and theobromin is to produce an increase in catalase with resulting increase in oxidation while the action of the narcotics is to produce a decrease in catalase with resulting decrease in oxidation is offered as an explanation for the antagonistic action of these substances.

Journal of Roentgenology, Iowa City

October, 1918, **1**, No. 3

75 Tubercular Lesions of Lung Parenchyma. B. H. Orndoff.—p. 199.
76 Pigmented Mole Casting Shadow of Renal Calculus. N. G. Alcock.—p. 227.
77 Club Hand Deformity in Roentgenogram. A. Steindler.—p. 234.
78 Chest Roentgenograms. L. A. Marty.—p. 242.
79 Roentgenologic Method of Measuring Potentiality of Voice Resonance. G. N. Merry.—p. 227.
80 Squamous Celled Epithelioma Responding to Roentgen and Radium Therapy. B. Allen.—p. 264.
81 Left Bronchus Filled With Bismuth Paste. C. H. Ballard.—p. 271.

Journal of Urology, Baltimore

October, 1918, **2**, No. 5

82 Structure of Verumontanum. Origin and Development of Its Inherent Glandular Elements. E. M. Watson.—p. 337.
83 Experimental Gonococcal Infection in Animals. H. Culver.—p. 353.
84 *Repair of Urethral Defects by Tubular Grafts of Vaginal Mucosa. F. Legueu.—p. 369.
85 *Unique Type of Urethral Obstruction. A. B. Cecil.—p. 379.
86 *Tuberculosis of Mesenteric Lymph Nodes as Cause of Ureteral Obstruction. T. N. Hepburn.—p. 385.
87 *Experimental Pyelitis in Rabbit. H. F. Helmholz and C. Beeler.—p. 395.
88 Bean-Shaped Double Kidney. Rare Type of Dystopia and Fusion. A. R. Felty.—p. 421.

84. **Plastic Repair of Urethral Defects.**—Legueu reports three cases, the only ones, he says, of which he has knowledge, in which this procedure was employed. One patient showed as a result of several attacks of gonorrhea, multiple urethral strictures. As the results of instrumentation infection occurred, a perineal fistula developed and the penile urethra became totally occluded from perineal fistula to meatus, the meatus itself being completely obliterated. This part of the urethra was palpable as a fibrous cord as thick as a goose quill. The penile urethra was reconstructed by a tubular graft of vaginal mucous membrane. In the course of a colpoperineorrhaphy, a rectangular segment of vaginal mucosa was excised. This was dropped for a few moments in warm artificial serum, then rolled about a 26 F. bougie its edges caught with fine catgut so as to form a tube about 8 or 9 cm. long. The bougie carrying the graft was then introduced into a tunnel previously made in the glans penis when the sclerotic urethra was excised, and placed in the gutter left by the excision of the anterior urethra, care being taken to place the line of grafted suture in the angle of the two corpora cavernosa. The end of the bougie was introduced into the urethra and this sutured end to end to the graft by an interrupted catgut suture. The superficial tissues were united in two layers over the graft and a small drain left in place, the outer extremity of the graft being sutured to the meatus. The bougie was withdrawn on the morning of the third day. The operative result is excellent. In the other two cases equally good results were obtained.

Certain general preliminary conditions are essential to the success of the operation. They are the following: 1. The resection must be preceded by a temporary urethrostomy which involves the suture to the skin of both ends of the wounded urethra. After making this urethrostomy, several months must elapse before applying the graft in order to work on uninfected tissues. The orifices must also be dilated in order to prevent stricture. 2. Suprapubic cystostomy. It is preferable to establish this before the urethrostomy. Perineal diversion of the urine is not satisfactory since it leaves a more or less infected wound near the point of grafting. The tissue should be prepared by tunneling.

85. **Unique Urethral Obstruction.**—Striking the perineum on the corner of a box caused a tear of the bulb with the formation of a sac which occupied almost the entire perineum. The sac was lined with glistening mucous membrane throughout and extended up around the urethra into the region of the scrotum on either side. Portions of the bulb were found on either side of the sac. A new urethra was formed from the wall of the sac.

86. **Ureter Obstruction by Tuberculosis Mesenteric Lymph Nodes.**—In the three cases reported by Hepburn the gland was compressing the ureter. The diagnosis was made with the aid of the roentgen ray. Removal of the glands by operation gave relief in each case.

87. **Experimental Pyelitis in Rabbit.**—Pyelitis was experimentally produced by Helmholz and Beeler in the rabbit by the intravenous injection and by the intravesical injection of *Bacillus coli-communior* isolated from spontaneous pyelitis in the rabbit. Pyelitis was produced in seventeen of thirty-one rabbits injected into the ear vein. Ten per cent. of the rabbits had also abscesses in the kidney. Three rabbits had abscesses without a pyelitis. Pyelitis was produced in ten out of fifteen rabbits by intravesical injection. In only one instance were there abscesses in the kidney.

Kansas Medical Society Journal, Topeka

December, 1918, **18**, No. 12

89 Preparation of Laboratory Specimens and Interpretation of Laboratory Reports. W. A. Baker.—p. 289.
90 Spanish Influenza at University of Kansas. N. P. Sherwood.—p. 294.
91 Early History of Medical School of Kansas. L. E. Sayre.—p. 295.
92 Medical School, Profession and Public. M. T. Sudler.—p. 297.
93 Medical Education and Period of Reconstruction. C. F. Nelson.—p. 298.
94 The Dispensary. N. F. Ockerblad.—p. 299.
95 Venereal Clinic. N. F. Ockerblad.—p. 300.
96 Medical School and the Great War. E. M. Kibbey.—p. 301.

Medical Record, New York

Dec. 21, 1918, **94**, No. 25

97 Certain Types of Hemorrhagic Nephritis. L. Buerger.—p. 1057.
98 Sulphur Dioxid Treatment of *Pulmonary and* Laryngeal Tuberculosis. F. Tweddell.—p. 1061.
99 Medical Treatment of Enteroptosis. A. Bassler.—p. 1066.
100 Review of Medicine and Surgery of Twentieth Century. B. C. Keister.—p. 1068.
101 *Value of Saccharin as Food in Diabetes. W. E. Burge.—p. 1071.

101. **Value of Saccharin as Food in Diabetes.**—From his experiments, reported in this paper, the conclusion is drawn by Burge that saccharin, in addition to serving as a sweetening agent, serves to facilitate oxidation, and hence should be positively helpful, particularly in a disease such as diabetes, where the principal trouble is defective oxidation, instead of harmful, as some have claimed.

Modern Hospital, Chicago

December, 1918, **11**, *No. 6*

102 Epidemic Influenza and U. S. Public Health Service. R. Blue.—*p. 423.*
103 Out-Door Treatment of Spanish Influenza. W. A. Brooks.—p. 427.
104 Cooperative Economy Campaign in All Departments of the Hospital. A. S. Bacon.—p. 430.
105 Laundry System Which Has Proved Successful. L. S. Fish.—p. 433.
106 Venereal Disease Clinics. M. M. Davis, Jr.—p. 436.
107 Heating and Power Plant Economics for Hospitals. D. D. Kimball.—p. 437.
108 Hospitals and Hospital System of Chile. M. K. Chapin.—p. 440.
109 War-Time Economy Problem in Hospital. T. A. Devan.—p. 445.
110 Hospital Accounting. C. A. Porter and H. K. Carter.—p. 448.
111 Little Journeys to Places and People Worth Knowing. M. J. Robinson.—p. 454.

New York Medical Journal

Dec. 21, 1918, **108**, No. 25

112 A Bolshevik Bolus. W. P. Cunningham.—p. 1061. **To** be continued.
113 **Friedländer Bacillus* Causative Factor in Bronchopneumonia Following Influenza. J. B. Rucker, Jr., and J. J. Wenner.—p. 1066.
114 Diagnosis of Sinus Thrombosis. A. Braun.—p. 1069.
115 Constipation Treatment of *Pneumonia.* E. E. Cornwall.—p. 1076.
116 Variation in Clinical Picture of Interstitial Keratitis. A. Brav.—p. 1078.
117 Knifeless Treatment of Piles. S. L. Katzoff.—p. 1081.

Dec. 28, 1918, **108**, No. 26

118 Preventive Medicine and Reconstruction of Race. F. Peterson.—p. 1105.
119 Results of Treatment in Six Hundred Cases of Appendicitis. G. P. LaRoque.—p. 1108.
120 A Bolshevik Bolus. W. P. Cunningham.—p. 1113.
121 Suggestions For Use *of Certificates* Showing Previous Infections in Control of Communicable Diseases. I. W. Brewer.—p. 1116.
122 Orthopedic Reconstruction Work on Hand and Forearm. A. Steindler.—p. 1117.
123 Successful Extraction of Opaque and Dislocated Crystalline Lens. H. F. Hansell.—p. 1120.
124 Lesions of Peripheral Nerves. C. G. Cumston.—p. 1120.

113. **Friedländer Bacillus.**—As a result of investigation of the sputum and of postmortem material from three typical cases of the malignant type of influenzal pneumonia, Rucker and Wenner feel that they are justified in saying that *B. influenzae* is the etiologic factor in the causation of the primary infectious influenza; that the secondary pneumonia and fatal terminations are due to the production of areas of bronchopneumonia caused by *B. mucosus-capsulatus*, otherwise known as the bacillus of Friedländer, and not by *B. influenzae*; and that *B. pestis* was not a factor in the etiology of the recent epidemic of influenza.

New York State Journal of Medicine, New York

December, 1918, **18**. No. 12

125 *Multiple Osteoma of Nasal Accessory Sinuses. Case Complicated By Syphilis. W. L. Culbert.—p. 465.
126 Primary Malignant Neoplasms of Lung and Pleura. M. Packard. —p. 472.
127 Some Irregularities of Heart and Their Treatment. J. L. Heffron. —p. 479.
128 Assay of Digitalis Preparations. M. S. Dooley.—p. 486.
129 Ocular Malingering. E. M. Alger.—p. 487.
130 Malingering from Standpoint of Ear. J. A. Robinson.—p. 492.

125. **Multiple Osteoma of Nasal Accessory Sinuses.**—Culbert cites a case of multiple eburnated osteoma involving the frontals, ethmoid, right orbit, middle and superior turbinates and cristi galli, and protruding into the cranial cavity. As this osteoma was so large and involved so many sinuses it was impossible to remove it as a whole, so that no exact size, shape, measurements, nor weight could be obtained; consequently, the size must be determined as far as possible by measurements of the shadows in the roentgenograms. In the frontal sinuses and the right orbit, this osteoma was one solid, continuous growth; but in the ethmoid region, it was composed of several nuggets, some of whose faces articulated perfectly. They resembled the tight overlapping of peanuts in a shell. In the operation, the result of this articulation was that when a part of one face was bitten off, the combination was unlocked with liberation of the remainder of that portion. These peculiarities of growth seem proof to the author that this multiple osteoma had several foci, which were, possibly, the frontal sinus, the junction of the frontal and ethmoid, the ethmoid, and the turbinates, and that all these different simultaneous growths were finally jammed and molded together. This growth covered a period of at least ten years. Although at necropsy an abscess was found in each frontal lobe, no sign or symptom referable to them had presented during the patient's life, with the possible exception of the last few days.

Ohio State Medical Journal, Columbus

December, 1918, **14**, No. 12

131 Treatment of Acne Vulgaris. A. Ravogli.—p. 687.
132 German Kaiser—A Psychological Analysis. H. H. Drysdale. —p. 689.
133 Physician's Place in War Time. B. R. Miller.—p. 694.
134 Fractures of the Aged. J. T. Haynes.—p. 698.

Pennsylvania Medical Journal, Athens

December, 1918, **22**, No. 3

135 Abduction Method of Treating Fracture of Neck of Femur. R. Whitman.—p. 112.
136 Acute Osteomyelitis in Children. A. C. Wood.—p. 118.
137 *Interpretation of Manifestations of Shock. C. C. Guthrie.—p. 123.
138 *Treatment of Surgical Shock in War Injuries. J. B. Roberts. —p. 126.
139 Some Theories of Shock. S. J. Meltzer.—p. 129.
140 Blood Pressure Question from Standpoint of General Practitioner. H. A. Hare.—p. 133.
141 *Results of Tests for Food Protein Sensitiveness in Small Group of Asthmatics A. Sterling.—p. 135.
142 *One Hundred Cases Treated With Autogenous Vaccines. W. A. Womer.—p. 137.
143 Requisite Attributes of Properly Fitted Spectacles and Eye-Glasses. S. L. Olsho.—p. 140.
144 Bacteriologic Study of Deposition and Distribution, in Community, of Form of Micro-organism Previously Foreign to Community. A. T. McClintock.—p. 145.

137 and 138. Abstracted in The Journal, Nov. 9, 1918, p. 1607.

141. **Protein Sensitiveness.**—The reactions of twelve asthma patients were tested by Sterling to the following food proteins: Egg yolk, egg white, milk, casein, cheese, herring, beef, chicken, lamb, pork, wheat, rice, potato, barley, cocoa, radish, beet, cabbage, onion; also horse serum, and cat's hair, dog's hair, horse hair. Only one of these patients exhibited a positive reaction, a woman who showed erythema and a slight wheal, to pork, to cabbage, to rice and to radish. The patient's own statement corroborated the test thus far, that these foods always aggravated or brought on an asthmatic attack; but although she had excluded them from her diet for the last ten years, she is still subject to recurrences of asthma. The other asthmatics tested could not give a definite statement as to the effects of any particular food on their paroxysms. Six patients were benefited by subcutaneous injections of gradually increasing doses of foreign vegetable proteins.

142. ***Value of Autogenous Vaccines.***—Womer used autogenous vaccines in 100 cases of arthritis, acne, abscesses, boils, carbuncles, endocarditis, eye and ear infections, infections of the hand, nasal sinuses, pyorrhea, respiratory conditions and urinary infections. Of these 100 cases 87 per cent. of the patients recovered completely, 13 per cent. did not. The most satisfactory results were obtained in infections of the skin and subcutaneous tissues. The results in respiratory conditions were not encouraging. All of the ear cases recovered except one, and this case was subsequently found by roentgen ray to have a very extensive involvement of the mastoid region. The improvement in many cases was very slow and the treatment was persisted in for many months.

Social Hygiene, New York

October, 1918, **4**, No. 4

145 Campaign Against Venereal Diseases in Its Ethical Aspects. L. Darwin.—p. 433.
146 Work With Chaplains in Army and Navy. W. A. Bradley.—p. 443.
147 An Efficient State Program Against Venereal Diseases. H. G. Irvine.—p. 453.
148 Act. No. 607. L. D. Childs.—p. 463.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 7, 1918, **2**, No. 3023

1 *Bent Back of Soldiers. A. F. Hurst.—p. 621.
2 Rheumatoid Arthritis. T. P. S. Strangeways.—p. 623.
3 *Cause of Rickets. D. N. Paton, L. Findlay and A. Watson.—p. 625.
4 Vanghetti's Operation. W. F. Brook.—p. 626.
5 Hysterical Tremor. W. Johnson.—p. 627.
6 *Complement Deviation in Cases of Malaria. J. G. Thomson.—p. 628.

1. **Bent Back of Soldiers.**—Considerable experience with this condition has convinced Hurst that the bent back of soldiers, however variable its etiology, is constant in its pathology, being always hysterical in nature, and consequently always curable by psychotherapy. The most common cause is a blow in the back, either due to the explosion of a shell hurling a man against the side of a trench or causing the parapet to fall on him, or to some accident which might equally well have occurred in civil life, such as being jammed against a wall by a lorry. Occasionally an actual wound is present, but this is always superficial, the spine itself having escaped.

The one common factor in these various causes is pain, generally in the back, but occasionally in the abdomen, which is relieved by bending far forward. After a time the pain caused by the blow on the back, rheumatism or other exciting cause, diminishes or disappears. The patient can now often rest comfortably lying flat on his back, but he continues to stand or walk in the same bent position. The pain has gone, but the posture, adopted with the object of relieving it, remains. Numerous investigations with the roentgen rays have shown that there is no organic spinal lesion, even in those cases which follow a severe blow on the back. The appearance of the patient is so characteristic that the diagnosis is at once obvious, as there is no organic condition which in any way resembles it, except *spondylitis deformans*, which, however, never affects young men Moreover, the position assumed in the latter is the same whether the patient lies down or stands, whereas the bent back of soldiers almost invariably disappears entirely, or almost entirely, on lying down. All forms of treatment except psychotherapy are useless.

3. **Cause of Rickets.**—The authors' experiments on dogs seemed to show that some other factor than diet is the prime cause of rickets in dogs, and they afford no evidence that milk fat (butter) contains any accessory factor protecting against the development of rickets. Pups kept in the country and freely exercised in the open air, although they had actually a smaller amount of milk fat than those kept in the laboratory, remained free of rickets, while the animals kept in the laboratory all became rickety.

6. **Complement Deviation in Cases of Malaria.**—A specific antigen for malaria has been prepared by Thomson from a culture of malaria parasites secured from as heavily infected a case as possible, according to the method described by J. G. and D. Thomson. The best antigen obtained by Thomson acted well diluted 1:30 with normal saline. The antigen must be titrated before use to estimate the minimum dose of complement required to use in the test. The patient's serum is diluted 1:10 with normal saline. Put up for each serum four tubes, three of which contain antigen, the fourth being the serum control. Into the three tubes containing antigen introduce two and a half, three, and three and a half doses of complement, and two and a half doses are added to the serum control. An antigen control is put up with each series. The method used is long fixation in the cold, the tests being kept over night in the ice chest. In the morning the sensitized red cells are introduced, and the results read after fifteen minutes in the water bath at 37 C. Thomson has performed tests on the serums of 200 known cases of benign and malignant tertian malaria, with or without parasites in the peripheral blood, and at all stages of treatment by quinin. After short courses of treatment the blood serum gives positive results, and in many cases he has obtained positive results, after a considerable amount of treatment; but the reaction tends usually to become weaker. After very prolonged treatment and in cases where there has been no attack of malaria for many months the blood serum usually gives a negative result. It is interesting to note that the serums of syphilitic patients give a positive result with this antigen, and it is necessary to exclude this disease.

Edinburgh Medical Journal

December, 1918, **21**, No. 6

7 Progress in Materia Medica. A. R. Cushny.—p. 317.
8 "No Splint" Treatment of Fractures About Shoulder in Humerus and About Elbow. J. W. Dowden.—p. 328.
9 First Steps in Laboratory Study of Patients. W. R. Logan.—p. 334.
10 Income Tax Information. J. Burns.—p. 341.
11 Training of Student of Medicine: Forensic Medicine. H. Littlejohn.—p. 346.
12 Id. General Practice. J. W. Crerar.—p. 350.
13 Id. D. E. Dickson.—p. 361.
14 Id. General Practice in Tropical and Sub-Tropical Countries. J. M. Dalziel.—p. 366.

Indian Medical Gazette, Calcutta

November, 1918, **53**, No. 11

15 War Surgery From Indian Troops War Hospital, Dehra Dun. N. Reader.—p. 401.
16 *Cases of Leprosy in Bangkok Main Prison Treated with Sodium Gynocardate and Sodium Gynocardate "A." M. Carthew.—p. 407.
17 Etiology of Sprue. L. Nicholls.—p. 409.
18 New Method of Standardization of Disinfectants. G. C. Chatterjee.—p. 414.
19 Roentgenography in An Indian General Hospital in Mesopotamia. J. D. Singh.—p. 417.

16. **Leprosy Treated by Gynocardates.**—Nine cases of the maculo-anesthetic form of leprosy and four cases of mixed leprosy were treated with sodium gynocardate A by Carthew. All lesions disappeared in two cases; very marked improvement occurred in three cases; considerable improvement occurred in six cases; improvement in one case and no improvement was noted in one case. Neither the duration nor the type of the disease seems to have any marked influence on the rapidity of the improvement. In Carthew's opinion, the relief granted to the patient by the improvement of his general health, together with the almost universal improvement of the symptoms of the disease, indicate that the treatment by sodium gynocardate A is indicated in all cases of leprosy of whatever type or duration.

Journal of Laryngology, Rhinology and Otology, London

November, 1918, **33**, No. 11

20 Reports for Years 1916 and 1917 from Ear and Throat Department of Royal Infirmary, Edinburgh. A. L. Turner, J. S. Fraser, and W. T. Garretson.—p. 323.
21 Histologic Changes Occurring at Site of Paraffin Injection. W. Wingrave.—p. 330.
22 Peculiar Neuro-Gastric Syndrome Cured by Submucous Resection of a Deflected Nasal Septum. J. B. Horgan.—p. 331.

Lancet, London

Dec. 7, 1918, **2**, No. 23

23 *Influence of Diet on Teeth Formation. M. Mellanby.—p. 767.
24 Treatment of Ante-Natal and Post-Natal Syphilis. J. Adams.—p. 770.
25 *Antiscorbutic Value of Raw Juices of Root Vegetables With View to Adoption as Adjunct to Dietary of Infants. H. Chick and M. Rhodes.—p. 774.
26 Hemorrhagic Bronchitis. H. Violle.—p. 775.
27 Local Anesthesia and Twilight Sleep in Surgery of Exophthalmic Goiter. S. H. Rouquette.—p. 776.
28 *Treatment of Extensive Septic Wounds. H. Gardiner.—p. 777

23. **Influence of Diet on Teeth Formation.**—The investigation made by Mellanby was undertaken primarily with the object of studying (1) the factors involved in the development of sound teeth and of the growth of the jaws in relation to the size of the teeth, and the factors bearing on the immunity of erupted teeth to caries and other diseases. The author discovered that hypoplasia of the teeth is caused largely by a deficient diet and that the factor in the diet which controls the calcification of the teeth is something of the nature of an accessory food factor (vitamin). This factor has a similar distribution to that of fat-soluble A, which is largely responsible for the calcification of bone, a deficiency of this substance in the diet being followed by the development of rickets. Puppies were used in this investigation. A diet containing in abundance those articles with which the fat-soluble A accessory food factor is associated, such as cod liver oil, butter, etc., allows the development in puppies of sound teeth. A diet otherwise adequate but deficient in the substances with which fat-soluble A is associated brings about the following defects in puppies' teeth: (a) delayed loss of deciduous teeth; (b) delayed eruption of the permanent dentition; in some cases the delay in the eruption of the permanent teeth is more marked than the delay in the loss of the deciduous teeth; (c) irregularity in position and overlapping especially of the incisors; (d) partial absence of or very defective enamel; (e) low calcium content; the deficiency in calcium salts may result in the teeth being so soft that they can be cut with a scalpel. The evidence makes it clear that this is an instance of diet affecting the teeth from the inside and is independent of bacterial sepsis and other oral conditions associated with food.

25. **Antiscorbutic Value of Root Vegetables.**—The results of the experimental work reported on here by Chick and Rhodes are strongly in support of those medical authorities who recommend the inclusion of some extra antiscorbutic in the diet of infants nourished on milk of which the original antiscorbutic value has been diminished by heating or drying. The experiments were made with young guinea-pigs. The juices were prepared by rubbing the clean-cut surface of the raw vegetable on an ordinary kitchen grater, placing the pulp in muslin and squeezing gently between the fingers. The juice was always prepared fresh every day. Expressed raw vegetable juices undergo changes rapidly at room temperature, and were found to deteriorate in respect of antiscorbutic value when stored even at a low temperature in a refrigerator. The raw juices of swede (turnip), carrot, and beetroot were used. The juice of the fresh raw swede (turnip) easily takes the first place in respect of antiscorbutic value. Protection from scurvy was attained with a daily ration of 2.5 c.c. In case of raw carrot juice, severe scurvy developed in animals receiving daily rations of 5 c.c. and 10 c.c.; with a daily ration of 20 c.c., protection from scurvy was secured and the general condition of the animals was about the same as of those receiving a daily ration of 2.5 c.c. swede (turnip) juice. In case of beet root, the antiscorbutic value was less than that of carrot; animals receiving a daily ration of 20 c.c. fresh raw juice showed only a small degree of protection, acute symptoms of scurvy supervened in every case, and several deaths from scurvy occurred before the period of experiment, three months, had expired.

28. **Treatment of Extensive Septic Wounds.**—Gardiner has been treating septic wounds with much discharge with no permanently applied dressing. The ordinary incisions for opening up recesses in pockets are made as soon as the patient has recovered from the result of transfer to the hos-

pital. Incisions and openings so made are performed with the idea of obtaining the maximum effect of gravity in the subsequent treatment. The wound is then packed with gauze and bandaged in the usual way, the sole object in this being to assist in stopping oozing of blood. All dressings are removed forty-eight hours later. The wound is then syringed with some mild antiseptic, for example, boric or weak eusol lotion. A guard made from perforated zinc, cut in an appropriate size and bent in the form of a cradle, is placed over the limb or part wounded and covered by a sterilized towel. If possible, an ordinary cradle is placed over the whole. Any discharge from the wound is allowed to run out from the wound, and is taken up by a sterile pad of wool of sphagnum moss so placed as not to touch the wound. At intervals varying with the amount of discharge, on an average twice a day, or in some cases more frequently, the nurse lifts the towel and zinc guard, syringes or swabs the wound, and changes the pad. The guard and towel are then replaced. This treatment is continued until all pockets and recesses have been closed by granulation, the granulating surface is smooth, and the discharge has practically ceased. The wound is then dressed in the ordinary way with gauze and wool. Forty or fifty cases have been treated in this way, and in none of them have any bad effects been observed as the result of leaving the wounds open. In some of these the wounds were so extensive, and the discharge so foul and profuse, that amputation on admission was seriously considered. Wounds infected with a great variety of organisms —all those commonly met with in such wounds—have been treated in this way with success.

Medical Journal of Australia, Sydney

Nov. 23, 1918, **2.** *No. 21*

29 Emergency Surgery. A. S. M. Tymms.—p. 425.
30 Case of Urethrectomy H. Bulloch.—p. 429.
31 Congenital Absence of Left Lung. A. H. Tebbutt.—p. 430.
32 Persistent Thymus in Exophthalmic Goiter. A. H. Tebbutt.—p. 430.
33 Polyuria in Some Cases of Medullary Hypernephroma. W. F. Litchfield.—p. 431.

Practitioner, London

December, 1918, **101.** No. 6

34 Cardiac Bruits. T. Horder.—p. 301.
35 Sanatorium Treatment of Pulmonary Tuberculosis. G. B. Dixon. —p. 308.
36 *Treatment of Sepsis by Zinc Ionization. A. R. Friel.—p. 315.
37 Massage and Electrotherapeutic Work at a War Hospital. N. Morris.—p. 324.
38 Recent Advances in Dental Surgery. F. N. Doubleday.—p. 331.
39 Fracture of Cervical Vertebra: After-Treatment by Mechano-Therapeutics. E. F. Cyriax.—p. 337.
40 Essential Features of Successful Maternity and Child Welfare Scheme for Smaller Towns. R. H. Deans.—p. 341.
41 *Treatment of Malaria. J. H. K. Sykes.—p. 346.
42 Foreign Body (A Living Fish) in Pharynx. M. Z. Shafei.—p. 348.

36. **Treatment of Sepsis by Ionization.**—Treatment of sepsis by zinc ionization consists in the introduction of zinc into the septic area by means of the electric current. The solution of zinc sulphate ordinarily used contains: zinc sulphate, 0.25 gm.; alcohol, 0.75 c.c.; water, to 100 c.c. But when it is desired to have the solution viscid, so that, for example, it may adhere to a sloping surface, gelatin is an ingredient: zinc sulphate, 2 gm.; gelatin, 15 gm.; water, to 100 c.c. Friel has found that ionization with zinc is successful in middle-ear suppuration, empyema of the maxillary, of the frontal, and of the sphenoidal sinuses; impetigo of the face, eczema, ulcers of the arms or legs; some wounds.

41. **Treatment of Malaria.**—Sykes is in favor of the large dose of quinin given in solution. The cases in which the best results were obtained were treated as follows: First week, 20 grains of quinin sulphate were given daily, four hours before the expected attack. Second week, the dose of quinin was reduced to 17.5 grains. Third week, the dose of quinin was reduced to 15 grains. The patients were kept in bed the first week; allowed up half day the second week, and all day the third week, with physical exercises and route marches. All the cases were of old standing, the duration of the disease varying from eight months to two years and eight months, and they were all cases of undoubted malaria Relapses have occurred in only 25 per cent.

Tropical Medicine and Hygiene, London

Dec. 2, 1918, **21,** No. 23

43 Enterica in Sudan. R. G. Archibald.—p. 229.

Archives de Médecine des Enfants, Paris

October, 1918, **21,** No. 10

44 Endocrinous Glands and Bone Dystrophy. V. Hutinel.—p. 505.
45 *Zinc Treatment of Cold Abscess. C. H. Sztark.—p. 546.

45. **Zinc Treatment of Cold Abscess.**—Sztark has found exceptionally effectual the application of a sheet of zinc, the thinnest possible, cut to fit the shape of the lesion and applied directly to it. He explains its action as the result of the ions generated by the different nascent compounds of zinc. The metal is held in place with a dressing which is left undisturbed for five or seven days. Any tendency to hypertrophy of the edges of the lesion calls for cauterization. He reports that long rebellious cold abscesses yielded promptly to this treatment.

Bulletin de l'Académie de Médecine, Paris

Nov. 19, 1918, **80,** No. 46

46 *Grafts of Dead Tendons. Delorme.—p. 452.
47 Renal Forms of Influenza. R. Dalimier.—p. 456.
48 Mechanism of Prostatic Retention of Urine. F. Legueu.—p. 458.

46. **Grafts of Dead Tendons.**—The Journal mentioned recently in these columns, page 149, the results obtained in a hand that had had six strips of dog tendons introduced to bridge extensive gaps in the tendons. Fine functional results were realized. Delorme has reexamined the man recently and found that practically the complete use of the hand had been regained, the dead animal tendons, which had been kept in alcohol for a month, acting like normal natural tendons. He urges the application of this technic on a large scale to aid men who have lost the use of one or more fingers from destruction of tendon substance.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 18, 1918, **42,** No. 29

49 *Influenza. Florand.—p. 949; Caussade.—p. 954; Rénon and Mignot. —p. 958.
50 *Pfeiffer's Bacillus in Influenza. Orticoni and Barbié.—p. 959.
51 Form of Colloidal Gold in Influenza. A. de Verbizier.—p. 961.
52 Symmetrical Tumors on Fingers. L. Giroux.—p. 963.
53 Follicular Psorospermosis. L. Giroux and Miriel.—p. 966.
54 *Malaria and Wassermann Reaction. Aimé and Lochelongue.—p. 968.

49. **Influenza.**—Florand's experience with 500 cases has convinced him that one attack usually confers immunity after complete recovery. The rarity of otitis, sinusitis and mastoi- ditis is noticeable, as also the almost constant tendency to hemorrhages. Spirochetes are frequently found in the sputum, but no one ascribes pathogenic importance to them. Netter thinks that plain serum would probably be as effectual as the antiserums that are being used, and if plain beef serum were used, it would ward off any tendency to anaphylaxis later. Caussade comments on the toxemia with influenza, saying that all treatment will fail until we definitely identify the pathogenic agent of the disease and institute specific serotherapy. The only rational treatment to date, he reiterates, is with antipneumococcus serum in the cases in which the pneumococcus is involved.

50. **Pfeiffer's Bacillus in Influenza.**—This report states that the influenza bacillus was cultivated from the blood, the pleural fluid or the cerebrospinal fluid in 58 per cent. of ninety cases. About 200 c.c. of glucosed bouillon is inoculated with 10 or 15 c.c. of blood taken from a vein of a patient with temperature of 102 or 104 F. Other germs add their action, but the Pfeiffer bacillus seems the pioneer. But it may be merely the pioneer of the second invasion, the first being by a still unknown germ.

54. **The Wassermann Reaction in Malaria.**—Aimé warns that a positive Bordet-Wassermann reaction should not be accepted as necessarily a sign of syphilis unless malaria, possibly atypical, can be excluded. In case of doubt, give quinin and watch the response then to the Wassermann test.

Lyon Médical

November, 1918, **127**, No. 11

55 *Treatment of Artificial Anus. J. Guérin.—p. 481.
56 *Pericardial Friction Sounds. J. de Teyssier.—p. 499.
57 Mosquitoes and Old Foci of Malaria in the Mountainous Regions of Southeastern France. L. Léger and G. Mouriquand.—p. 524.

55. **Artificial Anus.**—Guérin reviews the experiences in Delore's service with eighteen cases of a stercoral fistula or artificial anus. In nine of the cases lateral enterorrhaphy answered the purpose perfectly, the patients being all completely cured of their abnormal anus in less than a month. In the other cases enterectomy was required and proved equally successful. The dangers of this operation have been exaggerated, he emphasizes; it always proceeded smoothly in the cases reported. The only case in either series in which an attempt was made to operate extraperitoneally, proved a failure, and the intraperitoneal technic had to be applied after all. The eighteen cases are described in full, with the details of the technic.

56. **Propagation of Pericardium Friction Sounds.**—As a rule, the pericardium friction sounds do not spread. But occasionally, with the pericarditis of Bright's disease, the friction sounds are heard at a distance and two cases are on record in which it occurred with rheumatismal pericarditis. Teissier here reports a case in which the friction sounds were heard over a remarkably large area, and necropsy showed all the organs in the thorax soldered together from tuberculous pericarditis.

Paris Médical

Nov. 9, 1918, **8**, No. 45

58 Auscultation of the Tuberculous. C. Sabourin.—p. 357.
59 Pelvic-Trochanter Paralysis After Intragluteal Injections of Quinin. J. A. Sicard and H. Roger.—p. 366.
60 Roentgen Localization of Projectiles. J. Guyot, J. Masson and R. Chachignot.—p. 368.

Presse Médicale, Paris

Nov. 25, 1918, **26**, No. 65

61 *Septicemias. P. Govaerts.—p. 597.
62 *Blood Pressure in Malaria. E. Jeanselme and R. Dalimier.—p. 599.
63 Fracture of Ascending Ramus of Lower Jaw; Diagnosis and Treatment. L. Imbert and P. Réal.—p. 601.
64 Edema with Liver Disease. Editorial.—p. 603.
65 *Disinfection of Cavities. J. Silhol.—p. 604.

61. **Significance of Septicemia.**—Govaerts remarks that Bull has thrown much light on the nature of septicemia by his discovery that certain bacteria become agglutinated at once when injected into the blood of an experimental animal, and the bacteria disappear from the blood. The outcome of the infection thus depends on whether or not the animal's blood has a natural or acquired agglutinating property, as the bacteria, once agglutinated, become rapidly incorporated by the phagocytes. Govaerts has continued research in this line and here announces that the phenomenon is not actual agglutination, such as we see in the test tube, the bacteria sticking together. In the animal's blood, on the other hand, the bacteria become involved in a mass of blood platelets which solders them into a more or less solid mass without the bacteria themselves sticking together—there are always interposed platelets between them. This action of the platelets is elective, he adds, because when an emulsion of staphylococci and of pneumococci, mixed, is injected into the blood, the platelets pick out and solder the pneumococci while the staphylococci are left floating free in the blood. The agglomerated masses are arrested in the capillaries and they rapidly disappear, the bacteria vanishing as they are phagocyted. He is unable to state positively the fate of the platelets involved. If virulent pneumococci are injected into the blood of a rabbit, they do not become agglutinated in this way but keep on floating free in the blood stream. The same pneumococci, injected into the dog, rapidly mix with the blood platelets and become agglomerated in masses, vanishing from the blood stream. His research suggests that a phagocytic action must be attributed to the platelets, and that the ability to induce septicemia is not a question of the virulence or nonvirulence of a strain of bacteria but is a matter of their stability in the blood stream, their power of resistance to the agglomerating force of the platelets. The intensity of the septicemia depends, of course, on the power of the bacteria floating free in the stream to multiply. This power is possessed in high degree by the streptococcus, to a lesser extent by the staphylococcus, and by the perfringens or gas bacilius. Resistance to agglutination, resistance to phagocytosis, and aptitude for inducing septicemia seem to be all three the result of some special physical condition of the surface of the microbe.

This brings up the new question why at a given moment the bacteria of a hitherto localized infection suddenly acquire properties which permit them then to escape agglutination and circulate freely in the blood stream. This brings the question how to modify the surface of the microbe floating freely in the blood stream so that it will stick to the platelets and become agglomerated in masses of them. It seems logical to try to accomplish this by injection of an agglutinating serum; this might be tried in typhoid septicemia. In surgical septicemia the difficulty would be to obtain an agglutinating serum that would act on the different strains of streptococci, etc., involved. It is by an analogous action that Hooker's success with transfusion of immunized blood can be explained. The donor is first vaccinated by means of a microbe cultivated from the blood of the septicemia patient. It is evidently by some modification of the surface conditions of the microbes in the blood stream that the colloidal metals, foreign proteins, etc., exert their influence in treatment of septicemia. It has been noticed that all these diverse substances that have proved more or less effectual in treatment of septicemia, cause agglomeration of the platelets. The chemical composition of the substance injected into the blood seems of less import than its physical properties, but hitherto this phase of the subject has not been studied. As the mechanism of their action has not been understood before, it was impossible to select them with intelligence or gage their efficacy beforehand.

62. **The Blood Pressure in Secondary Malaria.**—The maximal arterial tension in ordinary malaria past the acute phase keeps at a certain level all the time, but the minimal tension varies within a remarkably wide range with every attack. This shows that the myocardium is clinically sound while the vascular tension fluctuates to a remarkable extent. The discovery of a drop in the maximal tension thus should warn that the malaria is passing into a pernicious phase or the heart is showing signs of weakening. The suprarenals seem to suffer during the malarial attack, and this may be the explanation of the upset in the vascular tension, the suprarenals either functioning to excess or becoming insufficient.

65. **Disinfection of Cavities in War and Peace.**—Silhol remarks that he used to rinse out the pleura but usually had deplorable results. The war has shown that the principle is correct but that it must be applied with infinite attention to details. This makes it a life-saving and promptly effectual measure. The same can be said of irrigating the infected uterus. In a recent case the puerperal uterus was profoundly infected, the cervix soft, the young woman's general condition grave, but there was no albumin in the urine, and Silhol had Carrel's method of irrigation applied to the uterus by a nurse skilled in the technic. The temperature began to go down by the next day and in four was normal. Contrary to his advice, the Carrel irrigation was suspended as soon as the acute phase was past, and a few weeks later symptoms of salpingitis became apparent. He is convinced that Carrel treatment kept up long enough would ward off infectious processes in the adnexa, especially when begun early. The lessons learned in war surgery in regard to disinfection of cavities should be applied in civilian practice without delay.

Progrès Médical, Paris

June 15, 1913, **23**, No. 24

66 *Suprarenal Insufficiency in the Troops. Satre and Gros.—p. 205.
67 Walking After Wounds of Legs. H. P. Achard.—p. 209.
68 Blanching of Hair after Skull Wound. J. Chalier.—p. 210.

June 22, 1918, **33**, No. 25

69 *Primary Poliomesocephalitis. Saint-Martin and Lhermitte.—p. 213.
70 Treatment of War Wounds. G. Louvard.—p. 215.
71 Femoral Arteriovenous Aneurysm. M. Haller.—p. 217.

66. **War Suprarenal Insufficiency.**—Satre and Gros give a number of examples of what they call war hypoepinephric

syndromes. Supplying the lacking epinephrin cured the disturbances when they took the form of a diarrhea resembling cholera, as also in grave gastro-intestinal toxic infections. The men thus affected had led a sedentary life before the war, and the functioning of their damaged suprarenals had sufficed for their regular indoor life, but under the stress of campaigning the insufficiency of their endocrine system soon made itself manifest. The symptoms reveal the inability of the antitoxic functions to cope with the excessive amounts of poisons generated by the waste from muscular work. Whether there is merely functional suprarenal upset or organic damage, the fundamental symptoms are the same, vomiting, dizziness, asthenia and hypotension—just as in seasickness. There may be also small brownish spots on the skin, symmetrically distributed. When the solar plexus is irritated, there are liable to be apoplectiform coma or pseudomeningitic symptoms, vasomotor disturbances, etc. The blood pressure is low in all the forms. Arsenic, mercury and iodid are violent poisons for the suprarenals; nicotin is also injurious for them. Large and fractioned doses of epinephrin are called for, with ingestion of the total extract of the suprarenals. The epinephrin and extract of the capsule have a tonic and cardiovascular action, remarkably effectual, promptly raising the blood pressure and acting energetically to promote diuresis. If the epinephrin can be given by the mouth, from 8 to 10 mg. can be taken during the twenty-four hours, fractioned and well distributed. It should never be given in syrup, but the drops should be counted into sweetened water just as the dose is to be taken. The digestive intolerance usually makes it necessary to give the epinephrin by intramuscular injection.

69. **Poliomesocephalitis.**—This term is used to express what Netter and others call lethargic encephalitis. Two absolutely typical cases are described; high fever, narcolepsy and ptosis are the main features of the disease.

Revue Médicale de la Suisse Romande, Geneva

November, 1918, **38**, No. 11

72 *Influenza. N. Betchov.—p. 625: J. Minkine.—p. 634.
73 *Poisoning from Barbital. P. Gautier.—p. 641.
74 Influenzal Albuminuria in Children A. D'Espine.—p. 647.
75 Ileus from Cherry Stones. Mauclaire.—p. 651.

72. **Influenza.**—Betchov expatiates on the characteristic fever curve in influenza, with its two high peaks at a two or three day interval, and the exacerbation of symptoms which parallel these double peaks. He thinks that this double course is explained best by the assumption of a multiple virus, twofold at least. The first virus must be a filtrable inframicroscopic substance which traverses countries with a rapidity without an equal in the annals of epidemiology. The second peak is the work of ordinary germs, especially the pneumococcus, which follow in the wake of the first virus. The incubation was exactly two days in his experience, and contagion seemed to occur only during the early catarrhal phase, before the subject felt that he was really sick. He is inclined to regard the characteristic pain in the spine region as the result of congestion and hyperfunctioning of the suprarenals. Minkine declares that influenza always confers a relative and usually a permanent immunity. It never exists in epidemic form in a country with rapid and multiple means of communication, and he insists further that it is possible to arrest an epidemic. A mask or handkerchief covering mouth and nose while in the room with the sick is effectual protection if the hands are washed often.

He exclaims that if a man does not open his umbrella until he has walked several minutes in a shower, the fact that he is wet does not prove that the umbrella does not protect against the rain. Contagion is always by direct immediate contact with some-one with influenza. In spite of extensive investigation, he has been unable to discover an instance of transmission of the disease by fomites. The pandemics are due to the fact that influenza is transmitted only slowly from place to place in remote regions with rare and slow means of communication. When it reaches railroads and other rapid means of communication, and the virulence of the virus becomes enhanced by repeated passages through human beings, it spreads more and more rapidly and with greater virulence. The concentration of men in camps this year provided exceptionally favorable conditions for its rapid and universal spread, as a new generation had arisen unprotected by immunity. The human race would die out, he remarks, if there were even one pandemic which did not confer at least a transient immunity. Epidemic influenza exists in sporadic form in the unpeopled regions of Turkestan and perhaps in the heart of Africa.

He says that the influenza virus does not exist in an active phase in the external world; this assumption is based on the single but well established fact that in every case direct contagion can be demonstrated if sought with enough care. The persons to tend influenza patients should be selected among those who have had the disease. They will not contract or spread it. All gatherings in enclosed places should be forbidden, and the cafés in particular closed, and persons obliged to work in common should be compelled to wear a mask. These precautionary measures need not be kept up long; a period of two weeks is ample. Draconian measures applied for a short period are effectual; half-way measures, even long kept up, are of no use whatever. Both Betchov and Minkine have had practical illustration of the principles they advocate as the isolated sanatoriums of Switzerland provided conditions as in a laboratory experiment.

73. **Barbital Poisoning.**—Gautier reports four cases of self-drugging or attempt at suicide in which 3.5, 5, 7 or 8 gm. of diethyl malonyl urea had been taken. One woman of 33 died after four days of coma and hyperpyrexia; the dose had been only 5 gm. Necropsy revealed nothing but congestion of the brain and the bases of both lungs. Those taking this drug habitually seem less able to stand moderate doses than others. Death has occurred from a 3 gm. dose in the addicts while recoveries are known after a single dose of 10 gm. Treatment can be only symptomatic. Gautier protests against the unrestricted sale of barbital, particularly as it is liable to lead to morphin addiction.

Policlinico, Rome

Nov. 17, 1918, **25**, No. 46

76 *Epidemic Meningitis. E. Brignone.—p. 1105.
77 Pericardium As Obstacle to Projectile. C. Guarini.—p. 1110.
78 Action of Formaldehyd on Tubercle Bacilli. F. Durand.—p. 1112.
79 The Medical Reserve Corps of the Future. G. Ruggi.—p. 1114.

November, 1918, **25**, Medical Section No. 11

80 *Recklinghausen's Disease. A. Roccavilla.—p. 321.
81 *Nitrobenzene Poisoning. P. Zuccola.—p. 341.
82 *Antitetanus Serum Neutralizes Strychnin. A. Londini.—p. 351.

76. **Epidemic Meningitis.**—Brignone emphasizes that with large and repeated doses of antimeningococcus serum and isolation of the sick and contacts the physician even in the remotest village can feel that he has no cause to dread epidemic meningitis more than any other disease, and that he can defend his patients against it. As a rule, he says, a polyvalent antiserum should be given the preference. The room should be disinfected, and for this he advises calcimining the walls; a hot 10 per cent. solution of soda for the floors, and the steam sterilizer—the autoclave—for the clothing and bedding, or else boiling. The contacts should be relatively isolated for two or three weeks, and the throat and nose examined every day and the tonsils painted with a 3 per cent. iodized glycerin with antiseptic gargles, and the nose douched with potassium permanganate and a mentholated salve applied inside the nose. These measures should be supplemented by a subcutaneous injection of 20 c.c. of antimeningococcus serum as a preventive given to those most exposed to contagion. Preventive vaccination is said to confer durable immunity, but he does not seem to have had personal experience with it. The curative dose of the antiserum ranges from 30 to 50 c.c. for intraspinal injection after withdrawal of spinal fluid in amounts a little more than the serum injected. The dose for infants is from 10 to 20 c.c. He has lost only two of his thirteen patients and these were in the last stages of the disease when the physician was first summoned. When the serotherapy was begun by the second day, the prompt turn for the better was constant.

80. **Neurofibromatosis.**—Roccavilla gives a minute description of two cases of Recklinghausen's disease, both in sol-

diers. He tabulates the metabolic findings and appends the biography of the last five years. There was nothing to suggest toxic action in the antecedents, no tuberculosis, syphilis, or other severe infectious disease, but the data presented seem to justify the conception of the endocrine-sympathetic nature of neurofibromatosis.

81. **Nitrobenzene Poisoning.**—Zuccola reports that a woman of 41 drank by mistake one morning, fasting, 30 c.c. of nitrobenzene (oil of mirbane). Emetics were administered in a few minutes after the first symptoms and she vomited, and in three quarters of an hour the stomach was profusely rinsed out and stimulants were injected. At the end of an hour and a half the woman sank into coma. The poison displayed a most rapid and intense destructive action on the blood, but this was followed by extremely active regeneration of the blood. Bone marrow obtained by trephining a rib and the tibia showed intense hyperactivity. Animals experimentally poisoned with nitrobenzene did not show any changes in the blood remotely resembling those in his patient, whose capacity for reaction was remarkable. At first the tint of the face was blackish, the subcutaneous veins looked like black stripes, and the limbs were contracted, with jerky movements, trismus and opisthotonos; the pupil reflexes were abolished as well as control of the sphincters. Blood from the finger looked black, and the reds did not form coin rolls. About 400 c.c. of defibrinated blood were injected into a vein after a few hours, and marked improvement followed. The transfusion was repeated two days later and the woman was discharged in good condition the fortieth day. The blood findings from day to day are recorded. The anisocytosis was most impressive. Some of the reds measured 14 and even 16 microns, while others measured only 2. The dark tint of the skin persisted for nearly two months. The blood findings and the clinical course resembled those in Pollak's case of acute copper sulphate poisoning.

82. **Power of Antitetanus Serum to Annul Toxic Action of Strychnin.**—This property of antitetanus serum has proved useful in standardizing the serum. Londini here presents evidence to show that this property is dependent on the cholesterol content of the antiserum. With cholesterol alone, the toxic action of strychnin can be annulled. The antistrychnin action seems to be proportional to the cholesterol content of the antiserum, but does not seem to have any connection with the antitoxic property of the antiserum.

Riforma Medica, Naples

Nov. 9, 1918, **34,** No. 45

83 *Mechanism of Action of Chloroform. V. Aloi.—p. 890.
84 *Mercuric Chlorid in Influenza. G. Ferrarini.—p. 893.
85 Postdiphtheric Stenosis of Larynx and Trachea. D. Tanturri.—p. 894.
86 Referendum on Influenza. Centanni and others.—p. 896.

83. **Action of Chloroform.**—Aloi reports research the results of which seem to confirm the increase in the urea, ammonia and total nitrogen in the urine after chloroform anesthesia. In small doses, no appreciable anatomic damage results, but with prolonged administration and large doses, grave changes develop in the organs, an actual fatty degeneration, mainly in the heart, the liver, the kidneys. Diabetes induces lesions analogous to those from chloroform, a clinical picture resulting under chloroform which resembles the acidosis of diabetes. He was able to determine directly the presence of beta-oxybutyric acid in the urine, in eleven cases described, as the immediate result of inhalation of chloroform. In one case of the kind, 25 gm. of choloroform had been used in a hemorrhoid operation, and afterward the total nitrogen rose to 18.732 per thousand, with beta-oxybutyric acid, but no acetone. In most of the other cases there was abundant acetone for a time.

84. **Intravenous Injection of Mercuric Chlorid in Treatment of Influenza.**—Ferrarini advocates in grave cases of influenza a daily intravenous injection of 0.01 gm. mercuric chlorid dissolved in 1 c.c. of physiologic saline. This gave such good results in his experience with hundreds of cases that he has abandoned all other measures except heart tonics when needed. He has never had any untoward by-effects with these large doses, and even grave albuminuria does not contraindicate this treatment; it improves instead of growing worse under it. He begins this treatment at the first sign of congestion of the lung, but even at the fifth or seventh day it proved effectual in a large number of cases, patients recovering under it who previously had seemed doomed.

Medicina Ibera, Madrid

Aug. 3, 1918, **4,** No. 39

87 The Cells of the Mesenchyma. C. Calleja.—p. 105.
88 Case of Acromegaly. A. Torres y Lopez.—p. 109.

Aug. 10, 1918, **4,** No. 40

89 *Reconstruction of Eyelid. Soria y Escudero.—p. 129.
90 *Mercuric Chlorid in Puerperal Fever. J. A. Pérez.—p. 130.
91 *Stenosis of Esophagus. A. Torres y Lopez.—p. 133.

89. **Reconstruction of Eyelid.**—Soria cut a long flap of skin extending down below the ear, according to Snydacker's technic, and twisted it around to make the new eyelid. The lid had been destroyed by a malignant pustule at the age of 14. It had been treated with the actual cautery and the retraction of the tissues left the eyeball exposed. The photographs show the apparently complete success of the blepharoplastics.

90. **Mercurial Treatment of Puerperal Septicemia.**—Pérez relates that he gives intravenous injections of a 1 per thousand solution of mercuric chlorid in treatment of puerperal septicemia. He has thus treated 200 patients, giving 2 c.c. the first day, half in the morning and half at night; the second day 4 c.c., fractioned, and so on up to 10 c.c. the fifth day, continuing with this dose, until the fever drops, then keeping on with half the dose. The curative effect is most pronounced in the cases of pure septicemia. In the fulminating cases the organism does not have time to react, and these injections are contraindicated, as also in pyemia. No by-effects of any importance were observed in any instance, while recovery occurred under this treatment in large numbers of otherwise apparently hopeless cases. Physiologic serum is specified as the vehicle.

91. **Stenosis of Esophagus.**—Torres comments on the remarkable prevalence of esophagus disturbances in his district (Granada). In a recent eight months there were thirty-one cases of stenosis at the clinic or in his private practice, and he here gives the details of this series. The roentgen rays show a large diverticulum in some. Most of the patients were men from 40 to 60 but one was a young man of 18. In all, the disturbances had come on gradually after symptoms on the part of the stomach for a long time, and in several cases other members of the family had likewise had stomach and esophagus trouble. In only one of the total thirty-one cases was the stenosis the result of drinking a caustic; this was a girl of 5 who had drunk hydrochloric acid five months before. No mention is made of the treatment in any case.

Prensa Medica Argentina, Buenos Aires

Oct. 20, 1918, **5,** No. 14

92 *Drainage and Irrigation of the Peritoneum. R. Finochietto.—p. 137.
93 Malformations of Uterus from Obstetric Standpoint. M. L. Perez.—p. 138. To be continued.
94 Obstetric Puericulture. M. Acuña.—p. 140.
95 *Protection of Duodenal Stump. N. Tagliavacche.—p. 145.

92. **Drainage of the Peritoneum.**—Finochietto gives five illustrations to show the different types of drainage required for various abdominal processes, and urges a combination of aspiration and intermittent irrigation as particularly useful in certain conditions. The aid of gravity must be utilized to the utmost, as he shows in detail. It may be necessary to drain the recesses of the mesentery, and for this he passes two tubes through from one flank to the other, passing one through a hole in the mesentery near the spine. One tube is for the irrigation, the other for the draining.

95. **To Protect Stump of Duodenum.**—Tagliavacche refers to the stump left after pylorectomy when the benign lesions in the anterior portion of the pylorus and duodenum do not involve the posterior portion of the initial segment of the duodenum. When the pyloric segment of the stomach is cut off, he turns it back on itself like a barn door which brings into view the peritonized posterior aspect of this pyloric segment. He cuts a flap in the peritoneum at this point, its

hinge portion on a level with the duodenum and pancreas. After resection of the pylorus, this flap is used to make a staunch covering for the duodenal stump, with a special triple row of sutures, as he shows in six illustrations of this *peritonco-duodenoplastia,* as he calls it.

Revista del Instituto Bacteriologico, Buenos Aires

August, 1918, 1, No. 4

96 *Bovine Serum in Prevention of Serum Sickness. J. Penna, R. Kraus and J. B. Cuenca.—p. 405.
97 *Treatment of Whooping Cough. M. I. Barilari.—p. 421.
98 *Production of Antitoxic Serums. A. Sordelli.—p. 427.
99 *Race and Family in Transmission of Cancer. A. H. Roffo.—p. 445.
100 *Vaccination against Anthrax. H. J. Rossello.—p. 449.
101 *Snake Venoms. B. A. Houssay and J. Negrete.—p. 453; Id.—p. 461.
102 *Research on Anaphylatoxins. G. Fischer and L. Kantor.—p. 471.
103 Microfilaria in Blood of Bird. R. Biglieri.—p. 481.

96. **Prophylaxis of Serum Sickness with Beef Serum.**—Penna, Cuenca and Kraus have found that beef serum injected before or with horse serum seems to neutralize the tendency of the latter to induce serum sickness. They describe the various efforts that have been made to ward off phenomena of anaphylaxis, and relate that the Besredka method of preliminary injection of a very small dose, a few hours before the main injection, has proved almost invariably effectual in animals, but it fails occasionally in the human, as they have experienced again and again with diphtheria antitoxin and antitetanus antiserum. No method to date has fulfilled the anticipations of its discoverer, so that the problem of prophylaxis of serum sickness is still clamoring for solution. In their extensive experience with normal beef serum in treatment of anthrax, they became convinced that beef serum may solve the problem. Their success in reducing the mortality of anthrax to a lower figure than ever before recorded, using plain normal beef serum in treatment, was accompanied by a notable reduction in the proportion of cases in which serum sickness developed, notwithstanding the large doses of normal beef serum injected. Further experiments with cattle have demonstrated that potent diphtheria antitoxin and antitetanus serum could be obtained with beef serum as well as with horse serum. With these antiserums there need be no fear of anaphylaxis on suspicion of a preceding serotherapy. By using beef antiserum, all danger is averted. Some recent experiences at the Children's Hospital have confirmed that serum sickness occurs only exceptionally (2.1 per cent. in 290 cases of anthrax; 0 in 40 cases of typhoid), when beef serum is injected, normal serum or as a diphtheria or tetanus antiserum. Given in equal quantities or at least over a third, with horse antiserums, it materially reduces the tendency to serum sickness (12.7 per cent. in 33 cases of typhoid or anthrax).

97. **Treatment of Whooping Cough.**—Barilari reports attempts at treatment of whooping cough with the patient's own sputum, or with asthma sputum, with an autovaccine, with sputum from healthy persons, and with various preparations. Charts are given showing the abrupt drop in the number of paroxysms after injection of an autovaccine or a preparation made from the patient's sputum. The latter is generally called Kraus' antitosina. One young man with violent paroxysms and vomiting, the tenth day of the disease, was improved by a single injection of autovaccine, no vomiting occurring thereafter. The second injection two days later was followed by a drop from twenty to eight paroxysms a day, all immeasurably milder, in less than a week. A young woman with whooping cough for a month was given two injections of 5 c.c. of a preparation from whooping cough sputum, and in a week the paroxysms had dropped from twenty-eight to nine, much less severe. No effect was apparent in some cases, but, on the whole, Barilari extols this antitosina method as efficient. The sputum for the antitosina must be from persons who have not previously been treated with it. The cough loosens up and becomes less spasmodic, and vomiting ceases. Thirteen charts are given; they demonstrate the superior efficacy of this whooping cough sputum therapy, at least over the other substances tested.

98. **Production of Antitoxic Serums.**—The Journal has previously mentioned (May 11, 1918, p. 1406), the success of Kraus and Sordelli in producing in a remarkably short time an exceptionally potent diphtheria antitoxin by injecting a neutralized mixture of diphtheria toxin and antitoxin, nonfatal for guinea-pigs. Sordelli here reports further experiences in this line which have confirmed the previous statements. In both old and young horses an antitoxin was obtained in two months far surpassing what could be obtained by the usual toxin method of immunization in five months. In one horse, an antitoxin potency of 1,200 units was obtained in two months, in two others, of 220 and 450 units. These three horses were under 5. With the older ones a potency of 700, 600, 180 units was obtained in about two months. Antitetanus serum was obtained in the same way by immunizing the horses with a mixture of tetanus toxin and antitetanus serum. The results were quite favorable, a potency of 150 and 250 units being realized in four or five months such as usually takes eight months to realize. More striking results were obtained when, instead of this, the horses were treated with tetanus toxin the toxicity of which had been annulled by addition of formaldehyd, 1.5 per thousand of the 40 per cent. solution. This toxoid proved nonfatal for guinea-pigs after a few days of contact, none of the animals dying by the eleventh day of contact when injected with 3 or 5 c.c. The antitoxic potency of the serum of horses immunized with this toxoid surpassed anything hitherto known in this line, two horses reaching 1,500 units in six or seven months, although they were 14 and 15 years old and were in poor condition at the start. Good results were obtained also with horses that had been previously immunized with the pure toxin.

99. **Race and Family in Transmission of Cancers.**—Roffo reports several series of experiments with transmission of cancers in white rats, one series alone using 1,150 animals. By interbreeding with the common black rat, and other experiments, he was impressed with the constant predominance of the mendelian laws of heredity as manifested in susceptibility to inoculated cancers. A difference in race and family, even a change to another environment, modifies the receptivity.

100. **Vaccination Against Anthrax.**—Rossello describes an antianthrax vaccine now made in Uruguay. It is a uniform emulsion of a certain number of free spores, and confers a more durable immunity than vaccines made from the bacteria themselves.

101. **Research on Snake Venoms.**—The diastasic properties of the organs of the *Lachesis alternatus* were investigated by Houssay and Negrete, as here reported. Another, their fourth communication on snake venoms is devoted to some Australian and East Indian snakes.

102. **Anaphylatoxins.**—The results of experiments on one species of animals cannot be applied to other species or to man without discrimination. The researches here reported confirm this fact anew, showing how a bacterial anaphylatoxin prepared with guinea-pig or rat serum is extremely toxic for guinea-pigs but not for rats and rabbits. On the other hand, anaphylatoxin prepared with rabbit, horse or dog serum does not seem to be at all toxic for guinea-pigs nor for the rabbit, horse or dog.

Revista Medica del Rosario

October, 1918, 8, No. 5

104 *Chronic Cervicometritis. E. Argons.—p. 349.
105 Lessons from a Case of "Decomposition." J. C. R. Cuesta.—p. 362.
106 Notes from Tixier's Service at Lyons. J. B. Abalos.—p. 365.
107 The Liga Contra la Tuberculosis. C. Alvarez.—p. 415.

104. **Treatment of Chronic Metritis.**—Argons insists that when there is cervicitis we can count on there being also metritis. The two can be cured, he says, in the simplest and easiest way by cauterizing with Filhos' caustic. This, he says, is a mixture of 2 parts potassium hydroxid and one of lime (*potasa caustica y cal*). The mixture is liquefied and run into the shape of a pencil. With this the lesions are cauterized. They form a soft black eschar, which drops off in eight or ten days not leaving a retractile cicatrix. The pain induced by the cauterization was insignificant in the six or seven cases thus treated. In two of them, described in detail, the metritis was of long standing and surgical

measures seemed the only resource. The caustic of Filhos is one of the old formulas in the textbooks as a paste made of caustic potash and quicklime mixed with alcohol. The French Codex specifies: potassa 100, lime 20; melt the potassa, add the lime and pour into molds.

Revista de Medicina y Cirugia, Havana

Nov. 10, 1918, **23**, No. 21

108 *Cocain in Eye, Ear, Nose and Throat Work.* A. F. Oñate.—p. 585.

Revista de Medicina y Cirugia Practicas, Madrid

Oct. 28, 1918, **121**, No. 1528

109 *The Law Regulating Septic Accumulations in Otology. F. Rueda. —p. 99. Commenced in No. 1527, p. 65.

109. The Law of Narrow Passages.—Rueda says that the middle ear represents a diverticulum of the respiratory apparatus. The eustachian tube grows very narrow as it ascends, and this narrow portion is an important protection against the migration of germs from the mouth to the middle ear. In case of inflammation, the narrow portion becomes congested and may close up entirely for the time being, thus protecting the ear completely. But if the germs manage to get into the ear, the very fact of the narrowness of the passage into the tube prevents ample drainage. The bacterial products accumulate; as they are unable to escape they damage the walls of the cavity, and these walls lose what defensive powers they normally possessed, while the germs in the enclosed space have their virulence enhanced. He shows how the whole middle ear and mastoid apparatus is a succession of narrow passages and broad cavities which all act in the same way to check the spread of infection, but once it has passed the barriers, it acquires unwonted virulence. His diagram of the conditions shows further how the infection can spread along a narrow passage and cause no damage to the walls or have its virulence increased, but when it reaches a cavity where the pus can stagnate, then serious processes develop at this point, and the infection seems to have leaped over the intervening space.

Semana Medica, Buenos Aires

Sept. 26, 1918, **25**, No. 39

110 *Comparative Findings with Different Technics for Tuberculin Test. J. P. Garrahan and L. Iraola.—p. 389.
111 Present Status of Dysmenorrhea. C. A. Castaño.—p. 395.
112 Papaverin. J. R. Goyena.—p. 401.
113 Outline for Study of Auscultation. A. Vitón.—p. 403.
114 *Boiled Milk. A. D'Alessandro.—p. 405.

Oct. 3, 1918, **25**, No. 40

115 Typhoid at Rosario. J. B. Valdês.—p. 413.
116 Operative Correction of Stiff Joints. A. Ceballos.—p. 416.
117 *Sign of Death of Fetus. C. F. Gandolfo.—p. 420.
118 Ileus from Diverticulum. P. O. Bolo and A. G. Gallo.—p. 421.
119 Constipation in Women. C. A. Castaño.—p. 427.

110. The Tuberculin Test in Children.—Garrahan and Iraola applied to 350 children the tuberculin *skin* test, the intradermal and the puncture test, using, respectively, the Pirquet, the Mantoux and the Hamburger technics. The children were from 2 to 13 years old, and all were apparently healthy. More than 1,500 tuberculin tests were made in the course of this research. They compare their findings with those recently reported by Bass. They confirm the greater sensitiveness of the Mantoux intradermal technic (with 0.0001 gm. tuberculin). It was often positive with a negative Pirquet, sometimes even in cases of active tuberculosis. There were no mishaps from the intradermal test; the one case of ulceration followed the skin test. The necessity for repeating the tests is greater the older the child. From 11 to 14 the skin tuberculin test at the first application gave only 55 per cent. of the positive responses obtained on repeating the test. No harm seemed to follow the intradermal or subcutaneous injection of the larger dose, 0.001 gm. tuberculin, when the response before had been negative or dubious.

114. Boiling of Milk.—D'Alessandro protests that if we systematically boil milk for children we must boil the butter also.

117. Sign of Death of Fetus.—Gandolfo's experience has confirmed the value of Boero's sign of the death of the fetus. When the beat of the aorta can be heard through the uterus between the fourth and seventh months of a pregnancy, the probabilities are that the fetus has been dead for at least ten or fifteen days. The beat of the aorta is not heard with the stethoscope in normal gestation at this period. In his experience, this sign never failed to be a reliable index of the death of the fetus.

Siglo Medico, Madrid

Sept. 21, 1918, 65, No. 3380

120 *Symptoms from Bladder Stones. A. Pulido Martin.—p. 769.
121 Psychasthenia with Erotic Obsession. A. Sanchez-Herrero.—p. 773.

Sept. 28, 1918, **65**, No. 3381.

122 Early Diagnosis of Appendicitis. L. Cardenal.—p. 789.
123 Significance and Origin of Rieder's Cells. G. Pittaluga.—p. 794.
124 Referendum on Influenza. M. Salazar and others.—p. 796.

120. Symptoms from Bladder Stones.—Martin remarks that the first symptom from the presence of a stone in the bladder is increased frequency of micturition after exercise liable to displace the stone in the bladder. Each new contact of the stone with the walls of the bladder acts as a foreign-body stimulus for the bladder to contract. Inquiry will usually elicit this increased frequency of micturition after exercise, although the patient may not have heeded it. The questions must be worded so as not to suggest the answers to the patient. Twelve cases are described; one boy of 12 complained of a sensation as of a foreign body in his bladder, and it hurt him when he ran or jumped. Another boy of 14 had for years had difficulty in urinating. After each micturition he had to remain seated for a time as standing was extremely painful. He was unable to run or ride a horse on account of the pain. Drinking water also induced pains by the resulting distention of the bladder.

Pain with stones in the noninfected bladder seems to grow less with increasing age. Especially in prostatics, the presence of a stone may cause no appreciable disturbances whatever. A boy may obtain relief from the pain with a stone by pulling on the bladder. He may tear a hole in his breeches pocket in order to do this. A transient interruption of the jet of urine is also instructive, but it is not always a sign of interposition of a stone. Simple cystitis may induce it by the spasm from the pain. Hematuria following exercise and disappearing or diminishing with repose is a symptom of capital importance, even when slight and infrequent. It can be rendered manifest by setting the patient at vigorous exercise, comparing the urine before and after. One man of 64 had blood in the urine when he coughed much. Stones in the kidney, ureter and urethra are not so movable as in the bladder, and hence exercise does not affect the pain from them as a rule. Incontinence of urine may also be a sign of a bladder stone. In three cases reported, the incontinence subsided after removal of the stone. In another case the symptoms were contradictory. There was pain at micturition, most pronounced during repose in bed, and there was no pain when the boy of 13 was running. Terminal hematuria had been noted on two occasions, and occasionally interruption of the jet. One man of 75 who had been under treatment for acute gonorrhea had persisting turbid urine, and the cystoscope disclosed two large bladder stones although there had never been previously any symptoms from them. In most of the cases described lithotrity proved all that was necessary, even in the boys of 12 and 14; when this was impossible prompt recovery followed the high incision.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Aug. 3, 1918, **2**, No. 5

125 *Alternating Heart Rhythm. S. de Boer.—p. 362.
126 *Physicians in Ancient Egypt. J. G. de Lint.—p. 372.
127 *Prophylaxis of Infectious Diseases. H. C. Mees.—p. 380.
128 Influenza. I. Oljenick.—p. 383; R. W. J. Ploem.—p. 385; E. Polak.—p. 388.

Sept. 28, 1918, **2**, No. 13

129 *Cancer Statistics. W. M. de Vries.—p. 1087.
130 *Starch in Fasting Stomach. Wijnhausen and Lubbers.—p. 1096.
131 Malaria with Symptoms of Meningitis. J. van der Torren.—p. 1102.

125. Alternating Rhythm.—De Boer gives electrocardiograms of alternating rhythm on the part of the ventricle, especially when the heart was under the influence of digitalis and antiarin. His tracings throw light also on the origin of ventricle alternans from delay in transmission of the impulse.

126. **The Physicians of Ancient Egypt.**—De Lint describes the tombs of some of the leading physicians of ancient Egypt, who evidently were prominent men in their day. He also quotes from Herodotus to illustrate the high position they held as medical men and priests. The wall pictures of the tomb of Sechemet, dating from the dynasty 2750 to 1625 B. C. show a luxuriant growth of hair, but those of Auta, a physician during the dynasty that reigned 1350-1205 B. C., are completely shaven, and Herodotus says that the physicians had to shave their entire body every three days. De Lint ascribes this to protection against vermin. Even the eyebrows were shaved off, and they were compelled to bathe twice during the day and twice at night. Their diet was regulated to exclude indigestible articles; they were forbidden to eat beans and pork. They were supported by the offerings made to the gods and had no financial cares. The fees paid by patients could be laid aside for their old age. Polygamy was forbidden to the physician priests. De Lint describes some statues of physicians, preserved at Petrograd and at Leiden, which bear inscriptions to the effect that the offerings made to the gods are to be saved for the physicians, and some of the pictures on the walls of the tombs show the physician and his wife seated at the table of offerings.

127. **Prophylaxis of Infectious Diseases.**—At certain times during the war the children of Reims were compelled to wear gas masks to school. Mees says that he saw recently a photograph of a school room there in which all the children were thus wearing gas masks. If this could be enforced against gas bombs, there is no reason, he declares, why children could not be compelled to wear masks to protect them in times of epidemic disease. In the streets it might not be necessary and would be hard to enforce, but in the school room, under the teacher's eye, it would be a comparatively easy matter thus to ensure absolute protection of the children by this means during the school hours. He suggests that a trial might be made in some small town where diphtheria, for example, seems to be endemic and recurs year after year. If the wearing of masks during school hours was followed by the disappearance of diphtheria from the town, we would know what to think of this prophylactic measure. He mentions several towns in the Netherlands peculiarly adapted for this experiment on a large scale. The children from homes where there is already sickness, and the known carriers might be compelled to wear the masks all the time they are away from home.

129. **Cancer at Amsterdam.**—De Vries relates that at the University Institute of Pathology during the last seven years there have been 518 cases of cancer found among 3,700 necropsies, that is, in 14 per cent. of all the cadavers. Of those under the age of 40, cancer was found in only 2 per cent. The youngest was in a man of 21, cancer of the liver; a woman of 22, rectum, and a man of 23, colon. Cancer of the alimentary canal, from mouth to rectum, formed four fifths of the total; the stomach, two fifths. The institute does not get many female cadavers, which explains the small number of uterine cancer cases. In eighty-two cases the cancer had not been diagnosed during life, often because it was masked by the other fatal disease. This proportion of 16 per cent. of unrecognized cases shows that the official records must be usually too low. In ten cases there were two or more cancers, both evidently primary, but in ten other cases the microscopic findings in the two or more tumors were so much alike that only one in each case can be considered as primary. In conclusion, a series of similar statistics from nine other institutions of the kind are tabulated for comparison. Two from Switzerland show thirty-four and twenty-nine cases of cancer of the thyroid in 521 and 1,078 cadavers. In the other countries there were only from one to five thyroid cancers, and only seventeen in all among the eight other series of statistics, from the Netherlands, Germany and Austria. There was a total of 175 cases of cancer of the lungs among the total 5,795 cadavers listed.

130. **Starch Grains in the Fasting Stomach.**—Wijnhausen and Lubbers report the findings in 600 persons whose stomach content was examined in the morning, fasting, after a test supper of two slices of bread and butter, nine hours before, the mouth well rinsed afterward. It always proved possible to aspirate 1 or 2 c.c. of mucus and fluid from the fasting stomach, and in a certain number of cases grains of starch were evident in it. When no grains of starch could be detected with the naked eye, it was sometimes possible to discover some with the microscope. They classify the cases as those with no microscopic starch grains; those with 1 or more widely scattered grains; those with 1 grain in each field; those with several in each field, and those with macroscopic minimum retention.

The tabulated findings in the 600 cases show that only the gastric and duodenal ulcers were represented in the class *c*, up to 20.6, 22.8 and 23.9 per cent. of the ulcer cases being found with macroscopic minimum retention. On the other hand, all the gastric cancer cases and the cases of gastric achylia were exclusively in classes *a* and *b*, 90 per cent. of each showing no grains of starch under the microscope, and 10 per cent., showing only one or more widely scattered grains. In these two classes were found also all the persons free from any symptoms on the part of the stomach. With stomach disturbances from gallstones, with atony of the stomach, with gastroptosis and with hyperacidity and gastric neuroses, the proportions of cases in class *c*, that is, with macroscopic minimum retention, were, respectively, 8.3, 6.7, 4.5 and 2.6 per cent. From 9.1 to 45.7 per cent. of the entire 600 tested, including the healthy, were found in class *b*, that is with a few widely scattered grains of starch. Hence this finding cannot be accepted as pathologic or significant. But they regard it as extremely significant that not less than 86 per cent. of the 59 patients with gastric ulcer showed macroscopic minimum retention, as also a certain proportion of the cases of gastric neuroses. They call attention especially to this, as the macroscopic minimum retention will enable us to discover a tendency to ulceration in dubious cases, and by keeping our eye on the sail, we can steer the course to safety instead of being surprised by a hematemesis in a supposed mere neurosis. The retention with gastric ulcer occurs intermittently, from pylorospasm. This explains the intermittent nature of the retention. Hypersecretion also favors retention of starch grains; the hydrochloric acid checks the digestion of starch by the saliva. With gastric cancer and achylia, this digestion proceeds unhampered, and practically no starch granules are found nine hours later. Niches and crevices in the stomach lining also favor this microscopic retention. Spasm of the pylorus may be induced by reflex action from gallstones or appendicitis, colitis or enteritis, but the percentage is only a fraction of that with gastric or duodenal ulcer. They emphasize in conclusion that the microscopic findings with cancer are of an entirely different mechanism and significance from those of macroscopic retention.

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132 *Calcium Chlorid in Intestinal Tuberculosis. Saxtorph.—p. 1765.
133 Influenza. V. Scheel.—p. 1766.
134 Etiology of Multiple Sclerosis. K. H. Krabbe.—p. 1772.

132. **Calcium Chlorid by the Vein in Intestinal Tuberculosis.**—Saxtorph was encouraged to try this treatment by D. Mandl's success with calcium salts in treatment of rebellious diarrhea with intestinal tuberculosis. Even in the severest cases the diarrhea is said to have been effectually arrested. Saxtorph's experience was equally favorable with it in three of the six cases in which he applied this treatment, namely, injection into a vein in the arm of a 5 per cent. solution of calcium chlorid. With this simple measure the patients were freed of all the symptoms of their intestinal tuberculosis for quite a long period. In the three other cases, no effect was apparent but there were advanced pulmonary lesions in all, and the system was evidently too deeply intoxicated and debilitated by a year of fever to respond to any treatment. At the same time, it might be well to give this treatment a trial even in these desperate cases, although naturally the results cannot be relied on as with the stronger patients.

(The Danish terms used are *Klorkalcium* and *Chloretum calcicum.*)

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PSYCHOSES ASSOCIATED WITH INFLUENZA

I. GENERAL DATA: STATISTICAL ANALYSIS *

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Sir William Osler[1] succinctly remarks that apparently "almost every form of disease of the nervous system may follow influenza." This postulate is seemingly quite justified by the accretion of neurophychiatric data from cases in the recent pandemic. The frequency of mental disturbances accompanying the acute illness in the epidemic has been the subject of frequent comment, and the wave of psychiatric material that followed in its wake was unexpectedly large and correspondingly interesting.

The literature on the mental diseases associated with influenza is remarkable for its paucity and the inadequacy of the communications, and this well applies to toxic psychoses in general. Bonhoeffer,[2] considered authoritative on the subject, ascribed this in a measure to the fact that "for the most part communications concerning the psychoses accompanying or following infectious disease proceed from the pens of others than psychiatrists. . . . A practical knowledge of the frequency and nature of the (mental) diseases encountered can only be learned from material that includes both internal and mental diseases."

Precisely because of the latter point, the Psychopathic Hospital affords unusual and highly desirable opportunities for the study and evaluation of data concerning the influenzal psychoses. Not only are many cases sent to the Psychopathic Hospital seen early in the course of the mental disease, but in all instances careful collateral study is made from the physical, serologic and social standpoints. The average influenza patient cared for at home is not seen by a psychiatrist; the average institutional patient is usually seen late in the course of the mental disease, long after aid from the physical side is practicable.

For these reasons the series of cases observed at the Boston Psychopathic Hospital during the recent epidemic are of particular importance. This institution serves a varied function in the community, but primarily it is a clearing house for cases of mental disease, and above all for the study of incipient (or borderline) mental cases. All of the cases here presented were regularly admitted patients, affording a certain definite uniformity of methods of study of the clinical material.

DIAGNOSTIC METHODS

A word is in place as to the methods used in the diagnosis of the "influenza" and of the "psychosis." As to the former, the statement of the attending physician, substantiated by the descriptions offered by the family or friends, was in most cases the chief evidence. In a considerable number we were able to make or confirm the diagnosis intramurally. In a few instances we have only the patient's word. For the accuracy of these we have no criterion or proof. On the other hand, the ubiquity of the disease, the singularity of its symptoms and course, and the absence of intercurrent epidemics in Boston at that time make the diagnosis of an acute febrile illness of short duration with respiratory tract symptoms and disproportionate prostration comparatively simple. Finally, it is certain that the percentage of error in the diagnosis is under the circumstances probably less than the average error in diagnosis of acute illness of all kinds, at all times, by all physicians.[3]

The psychiatric diagnoses in the Psychopathic Hospital are arrived at after this fashion. On the fifth day of the patient's stay, the case is presented to the entire staff by one of its members with the complete data of outside history, mental, physical and serologic examinations, and the special examinations, such as spinal fluid, roentgenographic, clinical chemistry, ophthalmoscopic and psychometric. At this time a preliminary diagnosis is made by vote. In a few cases this diagnosis is changed by or after the tenth day when the reconsideration of doubtful cases is made, usually at staff conference.

I hold no brief for the diagnostic ability of the staff of this hospital. I am glad to be able to refer to the statistical investigations of Lowrey,[4] the well substantiated conclusion of which is that the diagnoses made here are in some 85 per cent. correct (as measured by longer observation in other institutions).

STATISTICAL DATA

The epidemic appeared in Boston about September 15. From that time until December 15, a period of three months, 100 cases of mental disturbance associated with influenza were admitted here. Of these 100, data are complete on only eighty, and except for some general statistics it is the latter number which is considered.

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* From the Psychopathic Hospital, series of 1918.

[1] Osler, William: Principles and Practice of Medicine, New York, 1915.

[2] Bonhoeffer, K., in Aschaffenburgs Handbuch, Leipzig and Vienna, 1912.

[3] Compare Cabot, R. C.: Differential Diagnosis, Presented Through an Analysis of Three Hundred and Eighty-Five Cases, Ed. 2, Philadelphia, W. B. Saunders, 1912.

[4] Lowrey, L. G.: An Analysis of the Accuracy of Psychopathic Hospital Diagnoses, Am. J. Insanity, to be published.

Diagnostic Groups.—For the sake of statistical convenience and clarity it is desirable to introduce here a diagnostic grouping which will be elaborated on later in the paper. The psychiatric diagnoses in this series of cases vary, of course, within wide limits, including nine of Southard's eleven major groups of mental disease.[5] On the basis of numerical preponderance, however, they are readily classifiable into four groups:

Group I comprises those cases generally agreed to be states of delirium, dependent on the acute infection. "Infection-toxin delirium" seems to me better than the recognized reversal of the phrase, namely, "toxic-infectious," since from the name the latter may legitimately be interpreted to include incidents of delirium tremens superimposed on pneumonia.

Group II comprises the cases of frank dementia praecox.

Group III comprises the other forms of psychoses encountered which were thought to fit more or less precisely the generally recognized entities.

Group IV comprises the cases in which there was enough doubt or difference in opinion on the part of the staff to justify leaving the case unclassified. That is to say, *this is a group in which we did not feel certain of any one diagnosis.*

On the basis of this grouping, the numerical incidence of the cases was as shown in Table 1 and Chart 1.

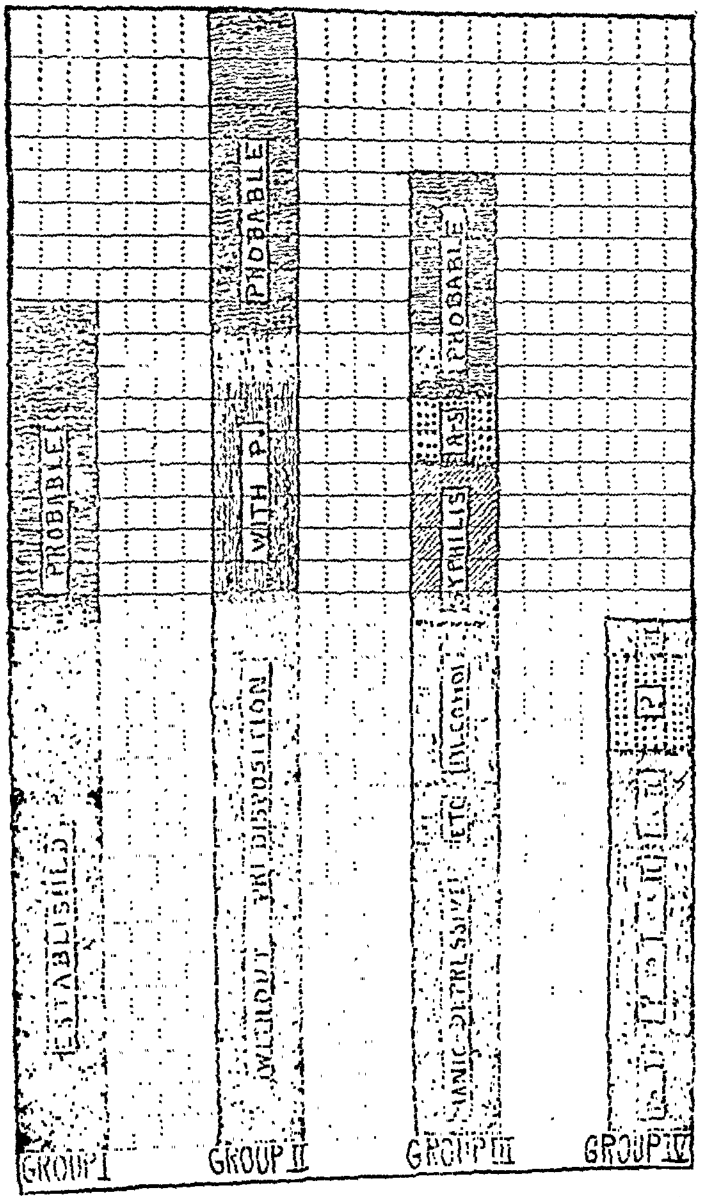

Chart 1.—A numerical summary of diagnostic groups. Vertical units represent individual cases.

The large size of Group IV will be remarked. It is here appropriate to point out that in many of these cases time will be the great diagnostician. Already one of the patients included in that group has returned to the hospital with this time a clear picture of dementia praecox. A forecast of probabilities, to be accepted only at its face value, is chiefly interesting in its confirmation of the results in the established groups. In other words, the indications from the unclassified group would seem only to augment in numbers the tendencies pointed to by the data of Groups I, II and III. Thus of that group, at the present time, three cases seem most likely to have been forms of delirium and three of dementia praecox; six cases are between those two diagnoses, and the remaining four cases are of other types. On a basis of probabilities, the totals of the eighty cases, plus the probabilities in the remaining twenty cases of the hundred, are presented in Table 2 and in Chart 1.

TABLE 1.—NUMERICAL SUMMARY OF EIGHTY CASES

Group I, delirium	16
Group II, dementia praecox	25
Group III, other psychoses	23
Group IV, unclassified	16

TABLE 2.—NUMERICAL SUMMARY OF ONE HUNDRED CASES ON BASIS OF PROBABILITIES

Group I, delirium	26
Group II, dementia praecox	35
Group III, other psychoses	30
Group IV, unclassified	9

From Tables 1 and 2 there appears at once the most conspicuous and remarkable fact of the present data. This is the unexpected frequency of dementia praecox as a postinfluenzal psychosis. It occurred more frequently in this hospital than all other psychotic forms combined, delirium excluded, and even more frequently than the delirium which should be the most common. In the latter cases, however, the fallacy is quite obvious, since the great majority of deliria are never sent to a hospital for mental diseases. In fact, it may be parenthetically remarked that some authors do not recognize delirious states as psychoses, the chief reason being, however, that there is no established definition of psychosis, rather than that the nature of delirium is not appreciated. However, the strength of the first comparison is undiminished, and becomes more remarkable on further consideration. This is, of course, necessary, since not all of the cases of dementia praecox were storms from a clear sky. The matter will be considered in detail below.

Sex.—The 100 cases comprise forty-three males and fifty-seven females. The eighty cases more extensively studied comprise thirty-four males and forty-six females. In both groups the proportions are the same, the females preponderating by 57 per cent. to 43 per cent.

TABLE 3.—SEXUAL DISTRIBUTION ACCORDING TO PSYCHIATRIC DIAGNOSES

	Eighty Cases, Established Diagnoses		One Hundred Cases, Probable Diagnoses	
	Males	Females	Males	Females
Group I, delirium	9	7	14	12
Group II, dementia praecox	4	21	8	27
Group III, other psychoses	15	8	16	14
Group IV, unclassified	6	10	5	4

On the basis of the tentative groupings detailed above, the sexual distribution appears as in Table 3. The chief deduction from this table is the predominance of the female sex in the patients presenting the picture of dementia praecox. Relative equality obtains elsewhere despite the influence of alcohol in augmenting the proportion of males in Group III (e. g., acute alcoholic psychoses).

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[5] Southard, E. E.: J. Lab. & Clin. Med. 4:31 (Nov.) 1918; Tr. Am. Neurol. Assn., 1918.

Age.—The age range was from 16 to 69, the youngest patient being a male, the oldest a female. The youngest woman was 18, the oldest man 61. The average of all was 31.7 years, without marked differences in the sexes (e. g., for Group I, males, thirty-three; females, thirty-one).

The average ages of patients in the diagnostic groups appear in Table 4. There is a statistical suggestion from this table of the bizarre hypothesis that the age is a factor in the determination of the form of resultant psychosis. Thus below, say 18, no serious mental complication is common. In the succeeding decade the tendency is toward the development of dementia praecox; in the next decade, toward some other psychotic entity. It is not pretended that this theory is to be taken entire, but neither is it wholly to be ignored. Nothing that contributes to the further elucidation of the question, "Why does a specific individual develop dementia praecox?" should fail to receive consideration.

Time Factors.—The two principal considerations concerning temporal factors are the duration of the influenza, particularly in relation to the psychoses engendered, and the chronology of the influenza and respective psychoses.

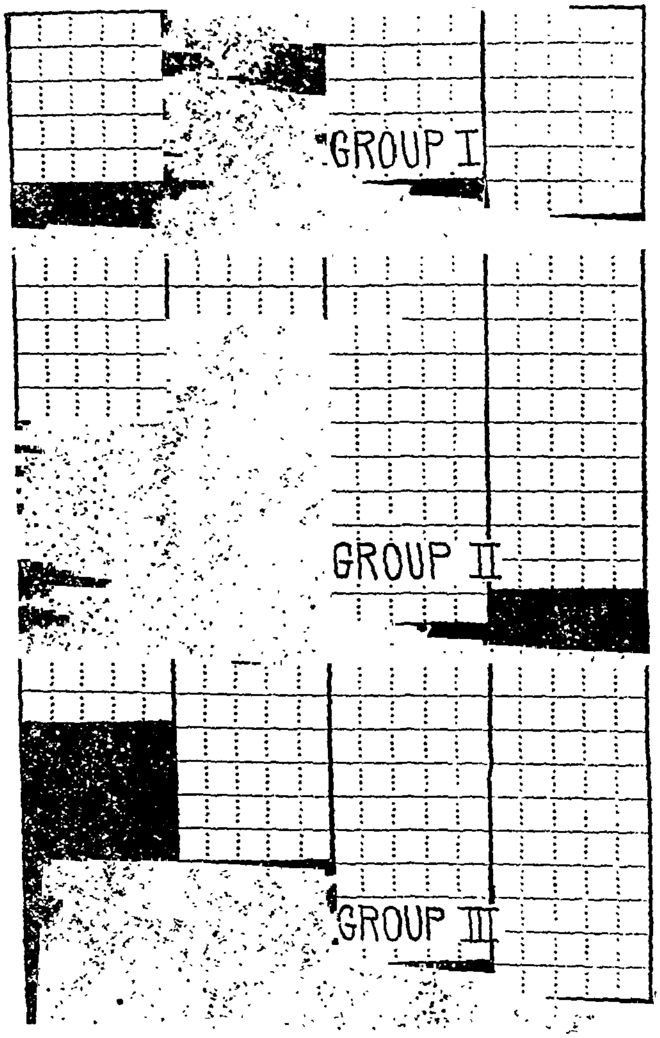

Chart 2.—Influence of duration of influenza on number of resultant psychoses. Vertical units represent individual cases, horizontal units, days.

Taking up first the matter of the duration of the influenza, we at once encounter a large factor of unreliability. In the first place, there might be some theoretical objections to the designation of any particular moment as the terminal moment of a specific attack of influenza. This can be pragmatically circumvented by assuming that the influenza terminates when the fever abates, that is, when the *temperature* returns to normal and there remains. Not only, however, are many of the patients not informed by their physicians of the precise date of this termination, but *in not a few* cases the physicians themselves evidently did or do not know. However, the difficulty was actually more apparent than real, because in most cases in which it was not known it could be estimated from the relative time spent in bed, the subjective symptoms, etc.

TABLE 4.—AVERAGE AGE OF PATIENTS ACCORDING TO DIAGNOSTIC GROUPS

I, delirium	32
II, dementia praecox	23
III, other psychoses	40
IV, unclassified	34

TABLE 5.—DURATION OF ATTACKS OF INFLUENZA, FROM HISTORIES

Uncomplicated Influenza:	
Range of duration	From 2 to 17 days
Average duration (49 cases averaged)	6 days
Influenza with Known Pneumonia:	
Range of duration	From 3 to 25 days
Average duration (19 cases averaged)	13 days

On this working basis the facts presented in Table 5 were obtainable. The reputed duration of the acute illness was, as may be observed, quite variable; but the listed cases fall into four rather clearly defined groups: those of a duration of less than five days, those of from five days to a week in duration, those lasting from eight days to two weeks, and those exceeding that length of time. Thirty-six per cent. of all the cases fall into the second group. On this basis, Table 6 is presented to show the relative frequency of each, and of the development of dementia praecox as the specific psychosis. The same is represented graphically in Chart 2, in five day periods.

The conclusions justifiable from these statistics are, first, that the duration of the influenza or influenza and pneumonia precipitating mental diseases is probably not appreciably greater than that of the average attacks of influenza or influenza and pneumonia in the present epidemic. The frequency of pneumonia (about 25 per cent.) is certainly larger than that obtaining generally, but this may in part be due to the fact that at least two thirds of our "pneumonia" patients were brought here, more or less moribund, because of the deliria of profound toxemia.

The second conclusion concerns the tendency of dementia praecox to show no constant relation to the duration of the influenzal attack precipitating it. As large a percentage of cases of dementia praecox followed the briefer attacks as followed the most prolonged and presumably more severe.

TABLE 6.—INCIDENCE OF PSYCHOSES AND PARTICULARLY OF DEMENTIA PRAECOX ACCORDING TO DURATION OF INFLUENZA

Duration of Influenza	Number of Cases, All Forms	Cases of Dementia Praecox	
		No.	Per Cent.
From 1 to 4 days	18	6	33
From 5 to 7 days	29	10	32
From 8 to 14 days	18	5	28
From 15 to 25 days	12	4	33

In the matter of the chronological relationships between the influenza and the psychoses, graphic presentation is most helpful.

Chart 3 presents the average interval between the somatic and psychic episodes. To be more precise, it represents the relative chronology of the fever accompanying influenza and the manifestation of psychotic symptoms following it. As will be noted in all instances save the deliria, the psychosis began on the average after the fever had abated. This interval varies from less than two days in the alcoholic psychoses to 8.5 days in the cyclothymic psychoses.

This chart is a partial verification of Bonhoeffer's principle, that "in general one may say that the later in the convalescence the psychosis begins, the more doubtful is its symptomatic character and the more frequently does it bear the stamp of endogenous psychic disturbances." It is also a valuable witness to Bonhoeffer's theory of the elaboration of the endotoxins as a result of stimulation by acute infection toxins, the former bringing about the psychoses.

An analysis of this interval by five day periods is presented in Chart 4. This chart has reference to the day of onset of the psychosis, as compared to the days of the influenza; that is, *those cases of psychosis manifested during the first five days of the illness make up the first pillar, those during the second five days the second pillar, etc.*

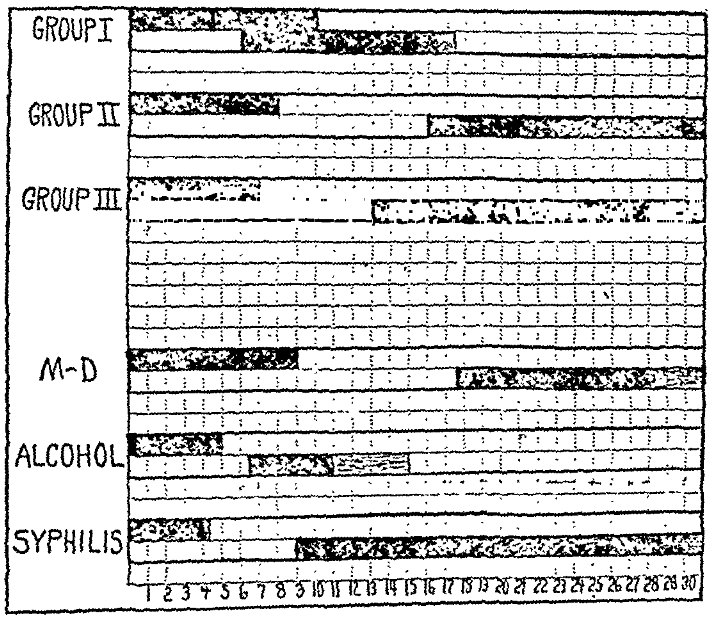

Chart 3.—Relative chronology of fever and psychosis. In each couplet the upper bar represents the influenzal pyrexia in days duration, the lower the psychotic manifestations. Units represent single days.

The conspicuous evidence offered by this chart is the tendency of simple delirium to occur early in the course of the disease, the postinfectious or "collapse" delirium being quite exceptional; and, on the other hand, the uniform rate of incidence of dementia praecox throughout the postinfluenzal period. Thus no cases of delirium occurred after the fifteenth day, whereas there were as many cases of dementia praecox between the twentieth and twenty-fifth days as between the first and fifth, or any other period. Further time studies have been made of the dementia praecox cases, but these must be omitted here for want of space.

SYMPTOMATOLOGY

A representative but synthesized case history reads as follows:

During the convalescence from influenza, Miss X suddenly became excited and rushed from her bed into the street, screaming. She was recaptured and confined in bed, but seemed to be bewildered, deluded and hallucinated. The motor excitement faded: the perverted ideation became augmented, and the family physician advised the Psychopathic Hospital. At about this stage the diagnosis is always in more or less doubt between various obvious possibilities. Subsequently the symptoms follow in most cases a more or less stereotyped course and the diagnosis becomes clear; that is, one case will progressively clear up and the patient be sent home recovered, with a diagnosis of postinfluenzal delirium; another will manifest more and more evidences of schizophrenia and be committed with a diagnosis of dementia praecox, etc.

Depression is traditionally the postinfluenzal symptom *par excellence*. Osler comments on it; most writers in psychiatry as well as general medicine follow suit. But depression as an emotional state of the psychoses following influenza is not strictly comparable with the depression which presumably is common after the disease in nonpsychotic subjects. (I am aware of one instance in which a mild tendency toward hypomania rather than the reverse was observed in a normal young man, and so recognized by himself.) Aside from a few cases of postinfluenzal depression in which the diagnosis was in doubt between the normal and the psychotic, depression was in this series distinctly uncommon. Only three cases of the depressed phase of manic-depressive psychosis were encountered. Only about a fourth of all the cases showed any depression at any time, and it was rarely constant when present.

The heterogeny of symptoms is manifest from the divers forms of psychoses presented. Certainly the most common two are *delusions and hallucinations.* The delusions are of all sorts: somatic, referred, paranoid, transformation, grandeur, etc. One sort or another were present in seventy of eighty cases. Hallucinations in one or more fields occurred in all of the cases diagnosed dementia praecox, and in all of the cases of delirium, and in two thirds of the remaining cases. The constancy of hallucinations in delirium as here seen might arouse curiosity as to why Regis and others have specified a particular "hallucinatory" type of delirium (confusion mentale aiguë), as if hallucinations were not generally present.

No cases were monosymptomatic. In the first two groups, however, there were characteristic symptoms. In the deliria, it is amnesia. This was present in all cases, either as an amnesia during the acute psychotic period for past events (including the paramnesia of the Korsakow syndrome) or an amnesia after the acute psychosis for events transpiring during it, or, as not infrequently occurred, both. The second form is an integral symptom of delirium, but it is not an absolute differential point, as it occasionally occurs in dementia praecox and some other forms.

In the dementia praecox cases the characteristic and omnipresent symptom was schizophrenia, used in the symptomatic sense. As this is, in fact, the criterion of the diagnosis of dementia praecox, the foregoing statement is axiomatic. A more remarkable fact is the occurrence of distinctly schizophrenic symptoms in cases in which the patients quickly recover and which are necessarily diagnosticated delirium. Six cases were left in doubt because of this fact, and one third of the cases diagnosed delirium showed at one time or another frankly schizophrenic symptoms.

Group III is too heterogeneous to allow of any such representation. The specific psychoses were so far as diagnosticated more or less true in type, and this is not the place to review the symptoms of the recognized psychoses.

Motor excitement and emotional acceleration were not conspicuous except in Group III. Here both the alcoholic psychoses and the cyclothymoses (especially manias) showed the characteristic hyperkinesis and hyperthymia.

DIAGNOSTIC GROUPS

The four groups used throughout this paper are, of course, by no means as homogeneous as their captions might suggest, and it is proposed to analyze, in a degree, their componency. The lack of space prohibits illustration by means of case histories or even abstracts, but as these are to appear later, it is perhaps desirable to present here only the structural framework of the series.

Group I.—The cases diagnosed "toxic-infectious delirium" or "delirium with infectious disease" (American Medico-Psychological Association nomenclature) embrace three forms of delirium. These forms are not based, as by Kraepelin,[6] on ambiguities, such as "confusion" and "exhaustion," or as by Bonhoeffer,[2] on the predominant symptom. They are based on the most simple and the only uniform factor, namely, time. It is in our experience here quite impossible to follow either Kraepelin or Bonhoeffer in distinguishing types of delirium. On the other hand, the deliria are in all cases of one of three types: prefebrile delirium; (cum-) febrile delirium, or postfebrile delirium. Either of the first two may be prolonged over into the subsequent period. This classification is so preeminently valuable from a pragmatic standpoint, and the subdivisions of the German writers so bewildering and so conducive to ambiguous descriptions, that for the present I feel that no further justification is required.

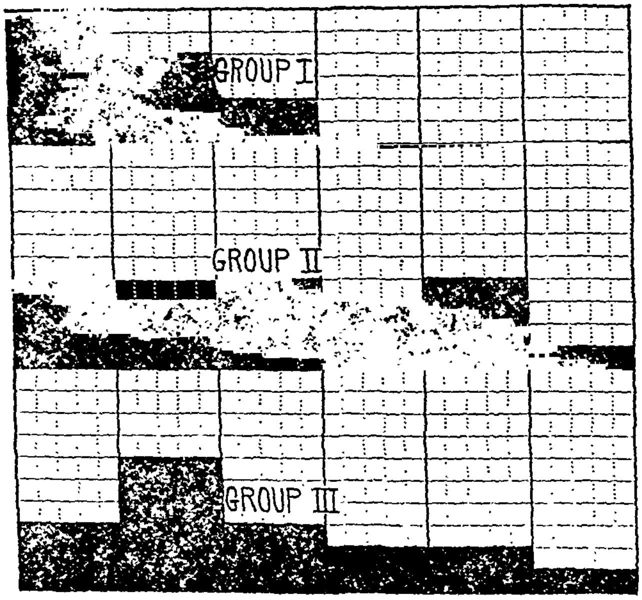

Chart 4.—Influence of duration of influenza on time of onset of resultant psychoses. Abscissas represent time periods in five day groups; ordinates, number of cases.

Statistically, there were in the present series one, possibly two, cases of prodromal delirium type.

Of the typical delirium concomitant with fever, the present series includes twelve. Of these patients, seven died. In one instance the fever abated two weeks before death.

Of the postfebrile deliria there were three, one of which was fatal. In one of the other two the delirium lasted two weeks.

Any general hospital could probably furnish more examples of all of these types than a psychopathic hospital. These cases are in a sense representative of the more severe forms of delirium.

Neurologic signs were not infrequently present. I am elsewhere reporting with Myerson an instance of severe bilateral optic neuritis which occurred in but one case, although all eye grounds were examined as a routine. One woman, aged 40, with typical delirium, presented absent pupillary and patellar reflexes, with muscular fibrillation. Several cases were noted with transient Argyll Robertson pupils. Convulsions were rare, occurring in only one case, and incidently in one fatal case in one of our nurses, not included in this series.

The spinal fluids were examined in most cases, and in only one instance was there any inexplicable change. This was a case of postfebrile delirium, with slight increase of albumin and globulin, and a mild midzone gold reading; Wassermann tests were negative. These negative findings do not coincide with the postmortem findings on spinal and cerebral fluids of patients dying of influenza, in which Southard and Canavan have found marked changes. (See note on Meningeal Reactions in Influenza, in preparation.)

Group II.—The patients who developed dementia praecox during or soon after an attack of influenza may de differentiated into three important groups. These are: (1) those with preexistent indications; (2) those with morbid family history, without previous tendency, and (3) those with neither. Of the first class there were, of course, two varieties: those with previous attacks of acute psychosis, dementia praecox episodes, and those who, without previous episodes, manifested a tendency to the seclusive, egocentricity, etc. In both of these types the acute psychotic episode seems to have been precipitated by the influenza, a process frequently mentioned in the literature, but by no means understood.

The patients in whose family history there appear pathologic elements — a psychotic father, a feebleminded brother, etc. — are separately grouped because of the possible contribution of these elements.

The group in which there was no previous indication, no evinced tendency and no morbid family history is certainly the most momentous group of this series. It is subdivided into those complicated by parturition, and those due solely to the influenza. In this group the influenza (and parturition) seemed to act by directly inducing a process for which there were no previous indications. There are as yet insufficient data to conclude that the infectious process may be the direct etiologic factor (perhaps via some such mechanism as Bonhoeffer proposes) of dementia praecox. Nevertheless the evidence which these cases constitute for the organic view of dementia praecox, as held by Alzheimer, Dide, Deny, Southard, Regis, Rosanoff and others, is of considerable weight. What effect it will have on the view of "curable dementia praecox," of which only rumors have thus far reached us *ex bello*, no one can say.

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[6] Kraepelin, E.: Psychiatrie, Ed. 8.

The numerical frequency of the foregoing subdivisions of Group II appears in Table 7.

Group III.—This heterogeneous group includes cases of the usual psychoses which were precipitated in acute form by the influenza. This does not relate to their permanence, since forms of manic-depressive psychosis will likely all prove transient; of neurosyphilis, presumably permanent. All began during the defervescence of, or convalescence from, the influenza. The cases of neurosyphilis are included, as the others, because although it is indisputable that the neurosyphilitic process precedes the influenza, the symptoms were so exaggerated or the process so accelerated that for the first time the conduct of these patients became such that institutional care was considered necessary.

TABLE 7.—SUBDIVISIONS OF THE DEMENTIA PRAECOX GROUPS

With preexistent indications		9
Definite episodes	3	
Disposition only (including 1 parturient)	6	
With morbid family history rient)		4
With neither personal nor		13
Influenza plus parturition	2	
Influenza (or pneumonia) alone	11	

An outline with the numerical frequency of each group appears in Table 8.

Group IV.—This group of cases of dubious diagnosis consists of sixteen cases. Of these, three were most likely postfebrile deliria; six were indistinguishable between postfebrile delirium and episodic dementia praecox; three, in my opinion, will likely prove to be dementia praecox, and five remain undiagnosticated because of unusual combinations of symptoms, insufficient data, etc.

The striking point in this group is the frequency of difficulty in distinguishing between postfebrile delirium and dementia praecox. There is not time here to dilate on this theme, or to recall the references to this difficulty made by the French authors who regard dementia praecox as essentially a toxic psychosis. It is sufficient to indicate that this fact, and the presence of schizophrenic symptoms in one third of the cases diagnosticated delirium, add considerable force to the suggestion made above from the statistics in Group II, concerning infectious processes as the possible etiology in some cases of dementia praecox.

TABLE 8.—STATISTICAL ANALYSIS OF GROUP III

So-called "functional psychoses"		11
Cyclothymias	9	
Manic phase	5	
Depressed phase	3	
Mixed phase	1	
Psychoneurosis	1	
Paranoia (Kraepelinian)	1	
Recognized organic psychoses		12
Alcoholic psychoses	5	
Neurosyphilitic psychoses	5	
General paresis	4	
Diffuse form	1	
Arteriosclerotic psychoses	2	

Another classification of the diagnostic groups is suggested by the facts presented. The influenza acts in two ways: as an inciting factor for a process not previously manifest, and as an exciting factor for rendering visible a previously latent or semilatent process. Thus the cases of manic-depressive psychosis with first attack following influenza illustrate well the first tenet, and the augmentation of neurosyphilitic processes the second. Our knowledge concerning both methods is at present in a clouded state, and only much careful study of series of cases such as the present will elucidate the matter.

From such a point of view the cases of this series may be presented numerically as in Table 9.

TABLE 9.—NUMERICAL SUMMARY ACCORDING TO WAY INFLUENZA ACTED

Latent Processes Activated:		
Dementia praecox	8	Total 32
Manic-depressive psychosis	6	
Neurosyphilis	5	
Alcoholic psychoses	4	
Other psychoses	5	
Unclassified	4	
Processes Instigated:		
Delirium	16	Total 48
Dementia praecox	17	
Manic-depressive psychosis	3	
Other psychoses	0	
Unclassified	12	

COURSE

The course of the psychoses has in general been indicated in connection with the individual groups. The delirious patients either recover mentally and physically or die. Those diagnosticated as having dementia praecox are all alive at the present time except two, who died within the month. There have been no deaths in Groups III and IV. Necropsy results will appear later.

Statistically the present status and probable prognosis is represented in Table 10.

TABLE 10.—COURSE OF THE PSYCHOSES

Groups	I	II	III	IV
Transient	10	0	14	6
Interrupted by death	6	2	2	3
Permanent	0	23	7	7

SUMMARY AND CONCLUSIONS

1. One hundred cases of mental disease associated with influenza in the recent pandemic have been studied at the Boston Psychopathic Hospital. Eighty of these have been intensively analyzed.

2. The variety of mental disturbance manifested is wide, embracing in this series nine of Southard's eleven groups of mental disease. For convenience they are readily classifiable into four groups: delirium, dementia praecox, other psychoses and unclassified. Of these the second (dementia praecox) is the largest group numerically.

3. That age may be a factor in determining the form of psychosis evolved is suggested by an analysis of the average ages of the groups.

4. Analysis of the time relations proves that the duration of the influenzal attacks in the patients developing psychoses is not appreciably greater than the average as reported in the present epidemic, nor does the duration modify the form of psychosis developed.

5. There is in most instances an interval between the termination of the influenza and the first manifestation of symptoms of psychosis, the averages varying from two to eight days in all save the febrile deliria. Herein, Bonhoeffer's principle of the relation of interval and complexity of the psychoses is supported.

6. The symptomatology is as complex as the nosology. Delusions and hallucinations are the most common symptoms, and depression is relatively infrequent contrary to the case in mentally normal subjects.

7. The states of delirium encountered are best classified as of three forms, on a temporal basis: prefebrile delirium (prodromes), (cum-) febrile delirium, and postfebrile delirium (collapse delirium,

exhaustion delirium, confusion, etc.). This accounts for all cases and avoids ambiguity.

8. Neurologic signs were few; ophthalmoscopic examination negative, save for one instance of bilateral neuritis, and spinal fluid examination negative save for one instance of modified colloidal gold reaction.

9. An organic basis for some instances of the picture denoted dementia praecox is supported by the preeminent frequency of its occurrence in this series (31 per cent), the age factor above mentioned, the frequency of schizophrenic symptoms in otherwise typical cases of delirium, and the occurrence of several (six or more) cases in which a diagnosis could not be made between delirium and dementia praecox, despite the presence of all diagnostic aids.

10. The psychiatric prognosis in influenza justifiable on the basis of the present series may be expressed in general as delirium (with recovery), death or dementia praecox. This excludes cases of previous psychotic basis, such as alcohol and neurosyphilis.

ATROPIN AND INDUCED ANTIANAPHYLAXIS

AS A PROTECTION AGAINST ACUTE ARSPHENAMIN REACTIONS [*]

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The acute nitritoid or anaphylactic reaction to the intravenous injection of arsphenamin has become rather familiar to the profession through the peculiarities of certain brands of the drug that have of late years been placed on the market. In the management of a few cases, or in the treatment of young, robust persons, the average acute reaction may be an annoyance rather than a critical complication. None the less, it has resulted fatally, and in the enfeebled or in those with grave constitutional ailments it may give rise to alarming situations. There is also a type of patient who needs the drug, but who, instead of an occasional reaction, exhibits a persistent marked idiosyncrasy which subjects him to repeated anaphylactic storms with successive injections that may force an abandonment of this form of medication.

Heretofore, the means for the control of acute reactions due to the administration of arsphenamin have been confined to special care in the preparation of the patient (catharsis and empty stomach), caution in the alkalinization of arsphenamin solutions, and to the use of the epinephrin solution suggested by Milian[1] in from 5 to 10 minim doses as a means of controlling the reaction after it develops. Epinephrin may also be used as a prophylactic, as noted, for instance, by Berman.[2] This drug, however, administers a shock of no mean intensity by its powerful effect on the vascular system, so that I have seen occasions in which patients have for the moment seemed in as much risk of serious damage from the therapy as from the original arsphenamin reaction. The frequency of nitritoid crises during the period in which German-made arsphenamin and neo-arsphenamin were being supplied to this country by submarine furnished an incentive to the development of a less vigorous prophylaxis for the reaction, which could be relied on to make repeated injections possible even in the face of a marked idiosyncrasy on the part of the patient. It occurred to me that such a prophylaxis might be based on the clinical resemblance of the nitritoid crisis and the reaction produced by imperfectly alkalinized arsphenamin solution to anaphylactic shock. A physiologic means of combating anaphylactic shock, it seemed to me, might protect against acute nitritoid crisis, and at the same time have theoretical interest as an indirect demonstration of the true anaphylactic nature of the phenomenon. This seemed the more worth while because of the theory, recently advanced by Schamberg, Kolmer and Raiziss,[3] that the reaction was due to the physiologic effect of an impurity (substance X) rather than to anaphylaxis per se.

Support for the belief that the nitritoid crisis is a form of anaphylactic shock rests on more than mere clinical analogies. Swift[4] early undertook to explain the reaction as a form of shock by showing that guinea-pigs could be passively sensitized to a mixture of guinea-pig serum and arsphenamin, and would on subsequent injection develop a true anaphylactic response. Since, however, the older conception of anaphylaxis required that a previous sensitizing dose of the allergy-producing agent be administered, the explanation of Swift seemingly failed to cover those cases in man in which nitritoid crisis developed on first injection.

The development of the newer physical conceptions of the mechanism of anaphylactic shock, made possible by the work of Bezredka and Strobel,[5] Kopaczewski and Mutermilch,[6] Jobling and Petersen,[7] Novy and De Kruif[8] and numerous other investigators, has done away with the objection to Swift's explanation. One of the essential facts in the production of anaphylactic shock may now be regarded as a change in the dispersion of the colloids of the blood serum. An investigation which has special application to the problem of arsphenamin reaction in its relation to anaphylaxis is that of Friedberger and Tsuneoka,[9] who found that the injection of a powder, such as kaolin, into the blood stream, gives rise to anaphylactic shock. MacKee,[10] among others, observed in 1912 that the intravenous injection of arsphenamin in acid solution produced a precipitate, and a reaction in the patient proportional to the concentration of the solution and the rate of injection, that is, the rate of formation of the precipitate in the blood stream.

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[1] Milian, G.: Les intolérants du 606, Bull. Soc. franç. de dermat. et de syph. **23**: 520-549, 1912. Milian, G., Girauld and Duret: Toxicité de néosalvarsan, Bull. Soc. franc. de dermat. et de syph. **24**: 272-280, 1913.

[2] Berman, L.: The Nitritoid Crises after Arsphenamin Injections, Arch. Int. Med. **22**: 217-223 (Aug.) 1918.

[3] Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Experimental and Clinical Studies of the Toxicity of Dioxydiamino-Arsenobenzol Dichlorhydrate, J. Cutan. Dis. **35**: 286-337, 1917.

[4] Swift, H. F.: Anaphylaxis to Salvarsan, J. A. M. A. **59**: 1236-1240 (Oct. 5), 1912.

[5] Bezredka, A., and Strobel, H.: De l'anaphylatoxine typhique, Compt. rend. Soc. de biol. **71**: 413-415, 1911.

[6] Kopaczewski, W., and Mutermilch, S.: Sur l'origine des anaphylatoxines, Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig. **22**: 539-549, 1914,

[7] Jobling, J. W., and Petersen, W.: The Mechanism of Antiphylatoxin Formation: Studies on Ferment Action, XV, J. Exper. Med. **20**: 37-51, 1914.

[8] Novy, F. G., and DeKruif, P. H.: IX, Specific Anaphylactic Shock, J. Infect. Dis. **20**: 776-832, 1917.

[9] Friedberger, E., and Tsuneoka, R.: Weitere Beiträge zur Wirkungsweise des Kaolins und anderer chemisch indifferenter und unlöslicher anorganischer kolloidaler Substanzen, Ztschr. f. Immuniätsforsch. u. exper. Therap. **20**: 405-416.

[10] MacKee, G. M.: A Study of the Blood after Intravenous Injections of Salvarsan, J. Cutan. Dis. **30**: 199-206, 1912; A Comparison of the Results Obtained by the Intravenous Administration of Acid and Alkaline Solutions of Salvarsan: A Preliminary Report, New York M. J. **94**: 825-832, 1911.

The application of MacKee's observation, which has been repeatedly confirmed by subsequent observations on the toxicity of acid and partially alkalinized solutions of arsphenamin, to the problem of arsphenamin anaphylaxis, may be made by way of Friedberger and Tsuneoka's demonstration of the effect of fine precipitates in the blood stream. Thus interpreted, the reaction to acid and imperfectly alkalinized arsphenamin is anaphylactic shock due to the formation of a precipitate in the blood. Reasoning by analogy, the closely similar picture of nitritoid crisis may be anaphylactic shock produced by the formation of a precipitate in the blood.

The demonstration of the correctness of this reasoning has recently been accomplished by the work of Danysz.[11] and of Berman. Danysz has shown that the arsphenamin solution is essentially colloidal, and that on its injection, the arsphenamin base is precipitated out by the constituents of the blood plasma, and then formed again into soluble organic derivatives. The rate of this precipitation is dependent to some extent on the alkalinity of the solution, and on the peculiarities of the individual blood plasma. If the solution is imperfectly alkalinized or if the serum of the patient is abnormal, rapid precipitation followed by acute reaction ensues. This observation links together the reaction to acid solutions of arsphenamin and the nitritoid crisis. Berman has recently shown that even with a properly prepared solution, precipitation occurs in the serum of hypersensitive patients. He differs from Danysz, however, in believing that this precipitation involves the proteins of the serum rather than the arsphenamin base. He believes, further, that a tendency to nitritoid crisis can be predicted by testing the serum of a patient with a solution of arsphenamin before the injection is given.

The question as to whether the entire phenomenon of allergic reaction to arsphenamin may be explained either by insufficient alkalinization of the solution or by peculiarities in the patient's blood serum can certainly not be regarded as completely settled. There remains to be explained the large body of observation on variations in the toxicity of arsphenamin itself. The proposal of Schamberg and his collaborators that there is a factor in the preparation of arsphenamin, an impurity of as yet unknown constitution, present in the drug, is not at all incompatible with an allergic explanation of the reaction. It is conceivable that it is not the arsphenamin base alone which precipitates, but the serum proteins as well, and that this precipitation of the serum proteins may be accomplished with especial ease even in comparatively normal persons, by a substance present as an impurity in the drug. No other satisfactory explanation can be found, to my mind, for the extreme frequency of reaction to certain brands of the drug, and its extreme rarity under identical technical conditions, in others. On my own service, in which the operators and the technic of operation remain unchanged for months and even years at a time, there can be no other satisfactory explanation for the fact that during 5,000 injections in which German preparations were used there were considerable periods when scarcely a day passed without a nitritoid crisis, while in 7,000 subsequent injections in which arsenobenzol-Policlinic and novarsenobenzol-Billon have been employed, the nitritoid crisis has become so rare that we have been compelled to all but abandon the work necessary to confirm the results presented in this paper. We have, moreover, had the opportunity to observe the production of crisis by an accurately alkalinized but evidently impure preparation used on the assurance of the manufacturers, in every one of five successive patients known not to present any personal idiosyncrasy to the drug. There can be little doubt in the minds of large users of arsphenamin that there is a factor of toxicity and a tendency to the production of anaphylactic response in certain preparations which cannot be explained in absolutely general terms, and is probably due to specific impurities.

My own attempt to devise a protection against acute arsphenamin reaction, and incidentally to support the view that the phenomenon was a manifestation of anaphylactic shock, consisted (1) in an attempt to employ the well-known inhibitory effect of atropin, recently experimentally demonstrated, for example, by Pelz and Jackson[12] in the dog, and (2) in an effort to induce antianaphylaxis to the drug according to the methods of Bezredka and Steinhardt.[13] It should be noted that Swift had suggested the possibility of antianaphylaxis on the basis of a casual observation that if a nitritoid crisis set in, and the injection was stopped, it could sometimes be resumed again in ten minutes without further ill effect. Work of this kind in patients can be undertaken with an expectation of trustworthy results only when the idiosyncrasy for arsphenamin is so definite and persistent that it is possible to exclude the factors of imperfect alkalinization, variations in the chemical composition of the drug as marketed, variations in the patients' individual state of health, and neurotic and hysterical factors. The number of patients meeting such control requirements is necessarily small, so that in a series of 12,000 injections it has been possible to employ the procedures described, with confidence in the results, in only about a dozen cases. The first case in which the method was employed is typical of the response in the entire series, and is here summarized. It should be noted that in this case neo-arsphenamin was used, thus eliminating the question of proper alkalinization of the solution, so important in judging of a reaction to arsphenamin.

REPORT OF CASE

The patient was a rather stolid Swedish girl who took her idiosyncrasy in a very matter-of-fact manner. She was under treatment for a florid follicular secondary syphilid. Following her initial intravenous injection of neo-arsphenamin she exhibited a rather sharp Jarisch-Herxheimer reaction in spite of a moderate dose. The second injection at the end of a week was without reaction. After the third she developed a marked, unexplained rise of temperature. The interval between the third and fourth injections was then lengthened to two weeks, and the fourth injection passed without event. Following the fifth injection she again developed a marked rise of temperature and vomited. No further injections were given for six weeks. During her first course, then, this patient had shown gradually increasing evidence of intolerance of neo-arsphenamin.

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[11] Danysz, J.: Les propriétés physicochimiques des produits du groupe des arsénobenzénes leurs transformations dans l'organisme (premier mémoire), Ann. de l'Inst. Pasteur **21**: 114-137, 1917.

[12] Pelz, M. D., and Jackson, D. E.: An Investigation of Certain Phenomena of Allergy With Special Reference to the Respiratory and Circulatory Systems in Relation to the Cause of Death, J. Lab. & Clin. Med. **3**: 387-396, 1918.

[13] Bezredka, A., and Steinhardt, Edna: Du mécanisme de l'anti-anaphylaxie, Ann. de l'Inst. Pasteur **21**: 384-391, 1907; De l'anaphylaxie et de l'anti-anaphylaxie, vis-a-vis du serum de cheval, ibid. **21**: 117-127, 1907.

The first injection of the second course marked the beginning of her nitritoid crises. Two minutes after the injection of 0.3 gm. of neo-arsphenamin in concentrated solution by the method of Ravaut, she developed on the table the characteristic intense scarlet flush with edema of the face and neck, cough, stridor, asthmatic breathing, prostration and vomiting. She recovered rapidly following a subcutaneous injection of 10 minims of a 1:1,000 solution of epinephrin.

On the next injection, one week later, the first attempt to protect the patient with atropin was made, a dose of 1/50 grain being given hypodermically fifteen minutes before the injection of neo-arsphenamin. The dose of neo-arsphenamin was 0.6 gm., double that of the preceding injection, and was given by the same technic. Only a very slight reaction occurred. There was no flush or pulmonary disturbance. The patient vomited once on returning to her room.

On the third injection, one week after the second, the dose of neo-arsphenamin was increased to 0.7 gm., the dosage of atropin and the time interval being identical with that on the preceding occasion. This time the reaction was all but negligible, although the patient tasted and smelled the drug and was distinctly nauseated.

The fourth injection was given one week after the third, the dose of neo-arsphenamin again being 0.7 gm. On this occasion, through a misunderstanding, the patient received only 1/150 grain of atropin subcutaneously. That this dose was insufficient was promptly demonstrated by the occurrence of a crisis on the table, with marked flushing, edema and vomiting.

Just preceding the fifth injection, also through a misunderstanding on the part of an assistant as to the size of the dose of atropin, the patient received 1/75 grain of atropin subcutaneously. The injection of neo-arsphenamin, 0.6 gm., which followed, caused a mild reaction, with flushing and vomiting.

So strongly did the efficiency of atropin in proper dosage suggest the anaphylactic nature of the reaction, that it was decided to attempt the production of anti-anaphylaxis in this case. Accordingly, one hour before the administration of the next injection of neo-arsphenamin, the patient was given 0.05 gm. of the drug in 0.5 c.c. of water, intravenously. The neo-arsphenamin used was of the same control number as that employed for the previous injection, which had shown itself capable of producing marked reaction in this patient (Control V U J). Following the injection of the half decigram dose, the patient became slightly dizzy and was a trifle nauseated on returning to bed. One hour after the preliminary injection the patient received 0.55 gm. of neo-arsphenamin intravenously in concentrated solution, injected at the usual rate. The complete inhibition of all reaction was striking. There was no flush, no nausea nor vomiting, no dizziness, cough nor stridor. The eyes became slightly suffused. The patient felt so much better than usual as to astonish her and all those who knew of her reactions. She was returned to her room, and no reaction was reported for twenty-four hours. At the end of this time, without rise of temperature or any other marked systemic symptoms, a generalized macular erythema of the typical late toxic type appeared. It was not accompanied by constitutional symptoms and disappeared two or three days later. It was judged wise, however, not to invite an exfoliative dermatitis by any further arsenotherapy.

COMMENT

This case was surrounded by all the precautions against pseudoreaction that we could devise. The reactions observed were typical of the acute nitritoid crisis and we felt that the sequence of events, as described, had not been modified by presuppositions on the part of the patient or by hysterical manifestations. Abundant objective evidence of the patient's intolerance was available. Not the least interesting suggestion based on these observation is the possibility that the acute anaphylaxis and the delayed toxic erythema are different types of reaction. An antianaphylaxis which was developed to protect the patient against the former failed to protect against the latter complication. The influence of atropin seemed to be quite definitely a function of the dosage, and doses below 1/50 grain failed to protect the patient against shock. It is to be regretted that circumstances made it impossible to transfer the problem from the patient to experimental animals for a more thorough study.

Since its successful employment in the case described, we have resorted a number of times to the induction of antianaphylaxis as a protection against acute arsphenamin reaction, notably in the treatment of patients with tuberculids, who show an idiosyncrasy in about 50 per cent. of the cases. I have noted with interest Danysz' impression, which my experience confirms, that small preliminary injections "vaccinate" the susceptible patient, so to speak, against the larger doses, an observation which Danysz supports by animal experiment, and offers likewise as a rationale for the regulation of dosage in treatment, and a means for increasing individual tolerance of the drug.

SUMMARY

1. The acute "nitritoid" crisis or reaction to arsphenamin is a form of anaphylactic shock, explainable on physicochemical grounds as the result of a precipitation either of the drug from its colloidal solution, or of the colloids of the blood plasma, by the drug, or by an impurity. The reaction following the injection of an acid or only partially alkalinized solution of arsphenamin either too rapidly or in too high concentration is presumably of the same type.

2. The nitritoid crisis can apparently be inhibited by a previous injection of atropin (1/50 grain), which further suggests that the reaction is a form of anaphylactic shock.

3. The induction of antianaphylaxis as described above further supports the belief that the nitritoid crisis is a form of anaphylactic shock.

4. The induction of antianaphylaxis in patients exhibiting persistent idiosyncrasy to arsphenamin or neo-arsphenamin has proved clinically useful, and, as a means of increasing their tolerance of the drug, deserves further trial and study.

Universal Compulsory Insurance Against Tuberculosis.—Dr. P. J. Ménard outlines in the *Presse médicale,* Nov. 25, 1918, a plan for universal compulsory insurance against tuberculosis, the funds from which would serve for the fight against tuberculosis. His scheme is something like the German compulsory social insurance against sickness, but the tax or insurance dues imposed would include all classes of society, not merely the wage earners. He protests that the fight against tuberculosis should not be left to charity or private initiative, but should be as much a matter of course as the tax on land, and the person contracting tuberculosis, whatever his social standing, should be compelled to do everything necessary to aid in throwing it off, with all the financial aid needed for this, and without his feeling that charity is being doled out to him. The fight against tuberculosis, Ménard reiterates, is first and foremost a question of money. It requires a permanent organization with a stable and automatic income, such as a per capita tax would supply. The money thus provided could be loaned to towns and provinces wishing to erect preventoriums, sanatoriums, hospitals, etc., for the tuberculous. Germany, he states, had nearly a third of the capital of its sickness insurance societies thus loaned out, a total of 365,920,290 marks, about $91,230,000. There are thirty-one regional and nine occupational sickness insurance societies, and they collect the dues under state supervision. The wage earners and the employers pay an equal sum weekly, totaling from 14 to 36 pfennigs, and the state adds a certain amount to this, but the dues and benefits are restricted to wage earners.

increased intracranial tension, but apparently never had the opportunity of using it in the acute ventricular block of cerebrospinal meningitis.

When the operation is performed, a rather wide opening should be made in the corpus callosum by gently moving the cannula. This opening is said to have the tendency to remain patent, and a new, more or less permanent communication is established between the ventricular cavity and the subarachnoid space. Surely this is probable as long as the normal outlets are clogged and as long as the intraventricular pressure is increased. Perhaps the callosal puncture may close after the exudate over the fourth ventricle has been absorbed and the foramina have reopened; but that is quite immaterial, as its object has been accomplished. In fact, as Flexner has suggested, the block in certain instances may not be due to an actual organic obstruction, "but merely to a functional lack of mechanical resistance which permits distention of the ventricles under moderate pressure, eventuating possibly in temporary obliteration of the outlets of the fourth ventricle by weight of the dilated lower horns which press the cerebellum down against the medulla." Under such conditions, a vicious circle would be established—the more distention of the ventricles the tighter the closure, and the tighter the foramina are closed, the more the ventricles will distend. In these functional cases, puncture of the corpus callosum would deliberately break the vicious circle.

We believe that this procedure is life saving in certain cases that would otherwise be hopeless. We also believe that in the nonfatal cases the distressing sequelae of hydrocephalus might be avoided by relieving the ventricular distention sufficiently early. Further, puncture of the corpus callosum is an operation of no great difficulty or magnitude, and can be performed without damaging any really essential structures of the brain. The contention that the injury to the association fibers produces an apraxia is not substantiated by practical experience.

The report of a case is submitted to illustrate our argument:

April 1, 1918, a soldier, aged 19 years, white, admitted to the meningitis ward of U. S. Army General Hospital No. 1, had been sick twenty-four hours, complaining of severe headache, stiffness and pain in the neck, nausea and vomiting. The patient's temperature was 101 F., the pulse 60. On admission, 30 c.c. of turbid fluid under moderately increased tension were drawn off by lumbar puncture, and 20 c.c. of antimeningitis serum were given intraspinally. Examination of the cerebrospinal fluid revealed approximately 2,200 cells per cubic millimeter, mainly polymorphonuclears, and the smear showed a gram-negative diplococcus. The family and the past personal history were negative. The patient appeared moderately ill, but he was mentally clear, and able to sit up and even walk. The pupils were equal, moderately contracted, but responded promptly to light and accommodation. There was no nystagmus. There was slight herpes labialis. The neck was rigid. There was a well marked bilateral Kernig. There was a definite tache cérébrale. There was no involvement of the cranial nerves. There was no Babinski reflex, but the patellar reflexes were slightly exaggerated.

April 2, the patient still complained of severe headache. There was no change in his physical signs. Thirty-five c.c. of antimeningitis serum were given intraspinally. Examination of the spinal fluid revealed 3,600 cells per cubic millimeter, and no organisms nor growth.

April 3, the patient appeared improved; 20 c.c. of antimeningitis serum were given intraspinally. The spinal fluid showed 2,500 cells per cubic millimeter and no organisms.

April 4, 20 c.c. of antimeningitis serum were given intraspinally. Herpes labialis was well marked. There were 400 cells per cubic millimeter in the spinal fluid.

April 5, 35 c.c. of antimeningitis serum were given intraspinally. The patient appeared more comfortable. There were 480 cells per cubic millimeter and no organisms.

April 6, 25 c.c. of antimeningitis serum were given intraspinally. The spinal fluid contained 900 cells per cubic millimeter, with no organisms. There was a faint systolic murmur at the apex.

April 7, the patient had little headache and only slight rigidity of the neck; but Kernig's sign was still marked. There were no cranial nerves involved. On lumbar puncture, 25 c.c. of clear, straw colored fluid were removed containing 210 cells per cubic millimeter, and 20 c.c. of antimeningitis serum were introduced. The temperature was 103.6 F., the pulse 72.

April 8, the temperature ranged from 100.2 to 104 F.; the pulse remained about 72. The patient complained of slight headache and general pains. Herpes labialis was less marked. The rigidity of the neck was not so great. There was a sinus arrhythmia. There were no cardiac murmurs. On lumbar puncture, 40 c.c. of clear, light colored fluid under considerable pressure were withdrawn, and 30 c.c. of antimeningitis serum were introduced. At 2:30 p. m., examination of the fundi revealed slight marginal blurring of both optic disks and moderate enlargement of the retinal veins. A diagnosis of beginning papillitis was made. At 3:30 p. m., the patient developed a very severe headache necessitating the use of 0.03 gm. of morphin. Fifty c.c. of antimeningitis serum were given intravenously.

April 9, at 9 a. m., the headache was less severe, but the rigidity of the neck was very definite. The Kernig sign was about 20 degrees on the right and about 45 degrees on the left side. The knee jerks were diminished. There was no Babinski reflex. At 11:30 a. m., lumbar puncture was performed and 70 c.c. of clear, light colored fluid were obtained and 60 c.c. of antimeningitis serum introduced. The patient had a chill, but the headache became less severe. At 5 p. m., he complained of very severe headache. Lumbar puncture was performed, and 80 c.c. of somewhat cloudy fluid under considerable pressure were withdrawn. At 8 p. m., the patient developed a weakness in the right external rectus, which soon became well marked. The blurring of the disk margins was less noticeable. There was no evidence of involvement of any of the other cranial nerves.

April 10, the general condition was somewhat improved. There were no changes in the physical signs. Sixty-five c.c. of fairly clear fluid were removed by lumbar puncture and 55 c.c. of antimeningitis serum introduced. At 4:45 p. m., the patient complained of a very severe headache and became markedly delirious. The paralysis of the right external rectus was very definite, and the facial muscles of the right side, including the frontalis, were paretic. There was a rough twitching of the muscles of the extremities. The patient yelled every few minutes and sang occasionally. At 6:30 p. m., he had two convulsions about fifteen minutes apart. They involved principally the left side of the face, and there was a conjugate deviation of the head and eyes to the left. He foamed at the mouth and had involuntary passage of feces and urine. At 8 p. m. a lumbar puncture was performed, and 40 c.c. of cloudy fluid were withdrawn. The pressure was very slight as compared with that of the morning. Coughing and straining did not increase the flow, as they had previously done. The temperature was 99 F., the pulse 58. The condition of the patient was extremely critical. Based on previous similar observations, it was concluded (Major Roberts) that the patient was definitely suffering from an acute obstructive hydrocephalus as a result of blocking of the ventricles, and that he should be given some form of surgical relief. A consultation resulted in the decision by one of us (Major Stetten) that the only logical and correct procedure was deliberately to establish ventricular drainage by a puncture of the corpus callosum. This was agreed on.

At 11:50 p. m., the patient was brought into the operating room in a raving delirium. The operation was performed under ether anesthesia (Major Stetten). A trephine opening about 2 cm. in diameter just to the right of the median line and about 1.5 cm. behind the coronal suture was made by means of a Hudson drill and rongeur. A dural flap was formed and the brain was found to be under considerable tension, although there was no evidence of inflammation of the membranes at the convexity of the cerebrum. A blunt, curved, callosal puncture cannula was introduced along the falx cerebri through the median fissure into the right ventricle, and about 25 c.c. of very slightly turbid, blood-stained fluid gushed out. It was decidedly different in character from that last withdrawn by lumbar puncture. The way the fluid flowed through the cannula suggested the manner in which the urine runs through a catheter when the bladder is distended. The opening in the corpus callosum was enlarged by gently moving the end of the cannula. No antimeningitis serum was introduced into the ventricles, as the fluid was not sufficiently purulent. The dura was closed with a chromicized catgut suture. The skin was closed with silkworm gut and a small rubber tissue drain inserted subcutaneously. Examination of the fluid showed it to contain very numerous leukocytes, about 75 per cent. polymorphonuclear. The cells were so clumped that a count was impossible. The culture was negative after seventy-two hours. No organism was found in the smears.

April 11, the patient was semiconscious and perfectly quiet. There was a right peripheral facial palsy. The neck was rigid, and there was difficulty in swallowing. There was no Babinski reflex. Toward evening the patient complained of severe headache and remained confused. The temperature remained low. The general impression was one of improvement.

April 12, the patient had regained consciousness. There was a decided change for the better. There was now a slight paresis on the left side of the face. The right external rectus was still weak, and there was a suggestion of a Babinski reflex on the left side. There was a serum rash on the extremities.

April 13, the patient stated that he ached all over; but he looked much brighter. The pulse was 110 and dicrotic. The finger nails were cyanosed. The paresis of the left external rectus was apparent. In the afternoon a lumbar puncture was performed and about 8 c.c. of blood-tinged fluid obtained, which came drop by drop. There was a rise of temperature to 101.5 F.

April 14, the patient had made considerable improvement, but still complained of slight headache. He was entirely conscious. The sixth and seventh nerve palsies were less marked, and there was a slight amount of blood in the stools.

April 16, the patient was making a gradual recovery, which had been slightly delayed by a febrile reaction with a maculopapular rash starting on the extremities and extending over the trunk, followed on some portions of the body by slowly fading petechiae, probably anaphylactic phenomena. As the condition of the patient improved, the primary bulging at the cranial defect gradually subsided. About two weeks after operation, there was an actual depression. The wound healed by primary union. The facial and left external rectus palsies disappeared rapidly, and the right external rectus paralysis was gradually disappearing.

May 5, the patient was allowed up for the first time.

May 14, eye examination revealed a slightly larger left pupil and a moderate convergence of the right eye. The pupils reacted normally to light and accommodation. Vision was 20/20 in both eyes. Both fundi were normal, and the optic disks were of good color and well outlined. The function of the right external rectus was returning, and at present represented a power of external rotation of about 15 degrees. The visual fields were normal.

May 18, the patient had been up for two weeks, and the temperature had been normal for three weeks. He was sent on furlough to his home.

A recent inquiry has elicited the information (October 2) that he returned to duty about August 1. His only complaint had been pain in his legs, which has gradually subsided. He has been riding a motorcycle and is now going in for football. The right external rectus has entirely recovered its function, and his mental and physical condition is in no wise impaired. He is anxious to go overseas, but he has been put in the domestic service class, presumably on account of the cranial defect.

SUMMARY

In the foregoing we find that a case of epidemic cerebrospinal meningitis, which had been running a relatively normal course, rather suddenly develops signs and symptoms pointing to an acute obstructive hydrocephalus. The patient rapidly goes into a condition that is little short of moribund, and a puncture of the corpus callosum to establish ventricular drainage is deliberately decided on and performed. The fact that the fluid from the ventricles was entirely different in character from the last fluid by lumbar puncture, and the manner in which the fluid gushed from the cannula, proved conclusively that the diagnosis of ventricular block was verified. Examination of the ventricular fluid showed no evidence of active meningococcic inflammation within the ventricles. The immediate postoperative improvement in the patient was almost miraculous, and is hard to realize by one who did not actually observe the change. The subsidence of the protruding intracranial contents shortly after operation, as the patient's condition improved, corroborated the view that the recovery, which eventually became complete, was due to the relief of the ventricular distention. We feel that we are justified in advocating puncture of the corpus callosum for ventricular drainage as a rational, life-saving procedure when the clinical picture of ventricular obstruction, described and illustrated above, appears in the course of a cerebrospinal meningitis.

In such cases, when, in addition to ventricular blocking, there appears to be an actual infection of the ventricle, that is, when the ventricular fluid is turbid or frankly purulent, or when diplococci are found in the smear, intraventricular administration of antimeningitis serum should be combined with puncture of the corpus callosum. Care must be observed to inject less serum into the ventricles than the amount of fluid withdrawn.[23]

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[23] In addition to the references already given, the following will be found of interest:

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Labbé, Marcel, Zislin, and Cavaillon: Les méningites cérébro-spinales cloisonnées et leur traitement par la trépanation et l'injection de sérum intraventriculaire, Bull. de l'Acad. de méd. Series 3, **75**: 319, 1916.

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Neveu-Lemaire, Debeyre, and Rouvière: Forme prolongée de méningite cérébro-spinale et trépanation cérébrale, Compt. rend. hebd. d. séances de l'Acad. d. sc. **162**: 885, 1916.

Ramond, Felix: La méningo-épendymite et sur traitement par la trépano-ponction, Bull. et mém. Soc. méd. de hôp. de Paris Series 3, **40**: 354, 1916.

Von Ziemssen, H.: Meningitis cerebro-spinalis epidemica, Handbuch der acuten Infectionskrankheiten, Leipzig Part II, **2**: 662, 1874.

Roentgen Examination of Gas-Filled Abdomen.—The *Nederlandsch Tijdschrift* cites a recent article by O. Goetze lauding the instructive *findings* when oxygen is allowed to pour into the abdomen preliminary to roentgen examination. This, he says, is entirely harmless, while it shows the viscera, diaphragm, etc., more clearly than ever before seen.

CARDIOVASCULAR EXAMINATIONS OF RECRUITS

AT CAMP LEWIS MUSTERING OFFICE, APRIL 20 TO OCT. 1, 1918

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Cardiovascular examinations of recruits at Camp Lewis from April 20 until July 20, 1918, were made only on men referred either by the tuberculosis examining board for abnormalities noted on routine chest examination or by the mustering office during general examinations. This method of referring cases was very unsatisfactory, as was shown by the large number of cardiovascular patients, found to be unfit for service after mustering in, who had never been referred to the cardiovascular examiners.

The announcement that 12,000 men would enter camp in July, and that each month thereafter a similar number would probably be sent, made it necessary to increase the efficiency of the cardiovascular examining board and especially to find a better method of referring men to the board.

The following plan was adopted: A board was organized which was composed of twelve medical officers and a corps of enlisted personnel. Nine officers were assigned for temporary duty during the incoming draft, and together with the three permanent cardiovascular examiners composed the board, the permanent specialists being used as a nucleus for the organization.

This board of medical officers was divided into two groups, preliminary and refer examiners. The duty of the preliminary examiners was to examine all the recruits before and after exercise and to recognize enlarged thyroids as well as abnormalities in the cardiovascular system. Refer examiners made complete cardiovascular examinations of men in whom abnormalities were noted by the preliminary examiners.

Five of the more experienced medical officers were made preliminary examiners and stationed in the upper story of the barracks used by the special examining boards. Any abnormality is noted on a slip of paper, the men are marked "C. V." with a skin pencil and sent to refer examiners downstairs, where in quiet rooms the routine complete examinations are made, including the hopping test as prescribed.

The work of the preliminary examiners is extremely important and, we think, efficient. Recruits are examined in groups of forty, stripped to the waists, lined on spots on the floor. Each officer examines eight men in each group, first rapidly passing down the line noting the location and character of the apex impulse and auscultating at all four valvular areas. Under the direction of an enlisted drill master the men are then exercised, bending forward and touching the floor rapidly forty times, keeping the knees stiff. (This exercise was used because it was noiseless and vigorous). The examiners again pass down the rows of recruits, this time more carefully, observation, palpation and auscultation being used. The purpose of the first preliminary examination is to cause those with dangerous defects to drop out without being subjected to too vigorous drill.

Recruits in whom cardiovascular defects have been noted are sent to the refer examiners downstairs. Here the history form is filled out, the pulse counted standing and supine, the men are made to hop 100 times on the left foot, and the pulse is counted in the supine position immediately and again after two minutes. This work is all done by enlisted clerks. Pulse records taken by clerks were probably more accurate than would have been if made by officers, as the men were chosen for this work and coached till they were very accurate; also conditions of pulse taking are maintained at a uniform standard. The medical officers now complete the examination. Fluoroscopy is performed in the same building by experts from the camp base hospital and tuberculosis examining board.

TABLE 1.—COMPARISON OF DISPOSITION OF RECRUITS

		Referred		Accepted			Rejected		
System	Draft Total	Total	% of Draft	Total	% of Draft	% of Refer.	Total	% of Draft	% of Refer.
1. Old.....	40,851	2,474	6.0	2,063	5.0	83.4	411	1.2	16.5
2. Present	30,697	4,213	13.7	3,340	10.8	79.3	873	2.8	20.7

Goiter examinations were conducted by a specially assigned medical officer with his own group of clerks during the July draft, but the examination of a large number of goitrous men, as reported by Capt. Thomas Addis, M. C., and Capt. W. J. Kerr, M. C.,[1] of this board in a previous paper, showed that in spite of the fact that endemic goiter is very prevalent in recruits reporting to Camp Lewis, toxic symptoms are extremely rare. Therefore in the August draft this special goiter examination was omitted. Those men with moderately or greatly enlarged thyroids were noted and those rejected in whom sufficient tumor was present to prevent use of the regulation military uniform without alteration of the collar, and also those presenting definite pressure symptoms, as well as marked substernal thyroids. The goiter notations were made during the routine cardiovascular examinations.

TABLE 2.—PROBABLE RESULTS UNDER PRESENT SYSTEM AS COMPARED WITH RESULTS UNDER OLD SYSTEM

		Rejected	
	Total Recruits	Per Cent.	Number
1. Results under old system............	40,851	1.2	411
2. Probable results on same men under present system	40,851	2.8	1,144
Difference..................................		1.6	733

The figures obtained by the cardiovascular examiners are given in Table 1, comparing the disposition of cases before the installation of the present system, including an increment of 40,851 men, and under the present system, 30,697 men. Analysis of the table shows an increase of more than 100 per cent. in the number of men referred and a corresponding increase in the number rejected. This means that the physical condition of drafted men being the same in both groups, 505 men were rejected under the present system who would have been missed by the old method, and 733 were accepted while the old system was in vogue who were suffering from disqualifying defects

TABLE 3.—PROBABLE RESULTS UNDER OLD SYSTEM AS COMPARED WITH RESULTS UNDER PRESENT SYSTEM

		Rejected	
	Total Recruits	Per Cent.	Number
1. Probable results under old system...	30,697	1.2	368
2. Results under present system........	30,697	2.8	873
Difference..................................		1.6	505

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[1] Addis, T., and Kerr, W. J.: The Relative Frequency in Recruits With and Without Thyroid Enlargement of Certain Signs and Symptoms Which Occur in Neuro-Circulatory Asthenia Arch. Int. Med., to be published.

and who would have been detected and rejected by the present board (Tables 2 and 3).

The most obvious thing shown by Table 4, the diagnosis tabulation, is the large relative and absolute increase in the number of certain types of abnormalities noted, especially cardiac murmurs, mitral insufficiency, mitral stenosis and irritable hearts. The increase of apical systolic and decrease in pulmonic systolic functional murmurs resulted from the more strenuous method of exercise used, which we find tends to bring out murmurs at the apex while those at the base tend to disappear.

The detection of a greater number of mitral insufficiency and stenosis cases and those of mitral stenosis is due also to the improved exercise, as it is well known that presystolic and diastolic murmurs many times are heard only after violent exercise.

TABLE 4.—DISPOSITION OF CASES BY DIAGNOSIS*

Diagnosis	April 20 to July 20			July 20 to October 1		
	Accepted	Rejected	Total	Accepted	Rejected	Total
1. Normal hearts	900	0	900	937	0	937
2. Apical systolic murm	309	0	309	680	1	681
3.	173	1	174	100	0	100
4.	34	0	34	33	0	33
5.	0	0	0	4	0	4
6. Mitral insufficiency	211	172	383	1,298	418	1,716
	1	2	3	2	12	14
	2	92	94	0	272	272
	0	32	32	0	32	32
	0	14	14	0	37	37
	0	13	13	0	14	14
	0	1	1	2	0	2
	0	0	0	3	0	3
	0	0	0	0	5	5
	1	1	2	1	0	1
	11	0	11	6	0	6
	138	5	143	121	11	132
	51	0	51	9	0	9
	90	0	90	25	0	25
	2	1	3	0	0	0
	0	4	4	0	2	2
	0	0	0	1	0	1
	0	0	0	0	1	1
	2	2	4	20	25	45
	20	7	27	28	5	33
	7	4	11	1	0	1
	1	1	2	1	2	3
	14	3	17	34	0	34
	2	0	2	0	0	0
	0	0	0	0	3	3
	0	1	1	0	1	1
	94	40	134	30	30	60
33.	0	1	1	0	0	0
34.	0	0	0	0	2	2
35. Tricuspid lesion	0	1	1	0	0	0
36. Pulmonic lesion	0	1	1	0	0	0
37. Elephantiasis	0	1	1	0	0	0
		400 11†	2,463 11†			
Total	2,063	411	2,474	3,336	873	4,209

* Four cases accepted with waiver of disability are not included in the list.

† Eleven cases classified as combined lesions were recorded in whom duplicate records were not kept and the exact diagnosis is not obtainable.

Increase in the number of cases of irritable heart (neurocirculatory asthenia) was due to the more careful observation by the preliminary examiners. All cases in which an abnormally high pulse rate was noted after exercise or in whom objective symptoms, such as undue dyspnea or faintness, were observed were sent to the refer examiners. We have been enabled also to detect many cases of acute infectious disease before the onset of subjective symptoms, tachycardia without history of previous trouble putting us on our guard. In these cases, temperature was taken; and if it was above normal, the recruit was isolated and sent to his infirmary. If the man complains of fatigue due to a long, arduous trip to the camp, he is given a rest, a good night's sleep, and his pulse is counted again on the following day.

Attention will probably be brought to the large number of men with mitral insufficiency accepted for full duty. These men show the characteristic murmurs with no cardiac hypertrophy, very slight or no accentuation of the pulmonic second sound, and no history of recurring attacks of acute rheumatic fever, chorea or tonsillitis. The apex beat is well within the nipple line and of normal character; the pulse and reaction to exercise are normal; the systolic murmur at the apex is transmitted well into the axilla; there is a systolic murmur at the mitral area, and the pulmonic second sound is more distinct than the aortic but is not definitely accentuated. These men are not classified as rejects in the recruiting regulations and have been accepted for full military duty. A list has been made of all these men, and I am at work at present preparing a report of their final disposition, especially as to their ability to undergo severe continued physical strain, such as given in the intensive training in camp.

CONCLUSIONS

1. The system of referring recruits for supposed cardiovascular defects by a mustering board or tuberculosis board when abnormalities are detected during the course of other examinations is entirely unsatisfactory. At least 50 per cent. of men coming to camp with disqualifying cardiovascular defects are not detected by this method.

2. A system such as the one in vogue at Camp Lewis, whereby every recruit is given a special cardiovascular examination, is efficient and should be instituted in all camps receiving large draft increments.

EFFECT OF CARDIAC DISTRESS ON THE WORK OF RECRUITS

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Physically, an army, like a chain, is only as strong as its weakest part. Each individual link or element in the make-up of the soldier-to-be is examined by the orthopedic, neuropsychiatric, tuberculosis, cardiovascular, genito-urinary and other examiners. On their arrival at Camp Sherman, the recruits pass before the different examiners, and the manifestly unfit are rejected. The tuberculosis examiners make a cursory examination of the heart. The apparently normal are passed. Those showing any abnormality are referred to the cardiovascular examiners. Here they are examined more carefully, from ten to fifteen minutes, or more when necessary, being devoted to each case. As a rule about 3 per cent. are referred to this board, a varying number of whom are accepted. The organic valvular diseases give little trouble, as the rules governing this type of case are more or less definite. The same group of cases that offers trouble in the examining line causes the greatest difficulty when more time is given for examination. We refer to the individuals complaining of some dyspnea, some cardiac distress or pain, and showing a rapid pulse, a poor response to exercise, often blue, cyanotic hands and feet, profuse sweating, especially in the axillae, a coarse, irregular tremor, and apparently little change in the heart. What becomes of the milder cases when accepted?

Three hundred men returned to the development battalion from the various line organizations because of complaints of "heart trouble" throw some light on this problem. The men, passed as apparently normal, were placed in organizations, found unable to drill, rejected as unfit for full military service, and referred to the development battalion.

OCCUPATION

As shown in Chart 1, the largest number of cases occurred among farmers, with laborers next, the two classes forming 168 cases, or 56 per cent. of the total. The clerical positions came next, with 17 per cent. The remainder were fairly evenly scattered. Sedentary occupations seemed to have little to do with the cases referred to the development battalion.

HISTORY OF PAST ILLNESSES

Chart 2 shows the relative frequency of the past illnesses. In every case the disease was named, the man answering "yes" or "no" to the inquiry. Whether measles and whooping cough are so common, or the familiarity with the names caused the men to believe that they had had the diseases in the past, is an open question, although all answers seemed to have been given in good faith. Excluding measles and whooping cough, acute rheumatic fever was the most common illness, 33 per cent. of the men giving a definite history of swollen, tender joints, with the acute process going from one joint to another. Occasionally, there were men who dated their trouble back to an acute infection. The acute infections of scarlet fever, typhoid fever, pneumonia and tonsillitis have about the same frequency, while the considerable number of men from the South raises the malaria incidence.

It is interesting to note that 154 have had symptoms for five years or more, some insisting that they have always had distress. Among those who have had trouble for six months or less, only twenty-three in all, most attribute their difficulty to an acute infection.

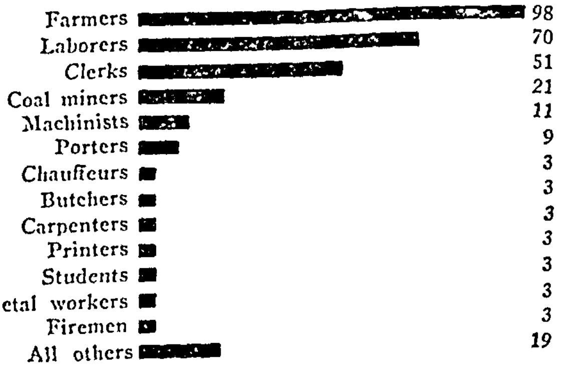

Chart 1.—Relative occupations.

As would be expected in youths of this age, the use of tobacco is almost universal, 253 out of 300 using it in some form or another. Alcohol also has its share of followers, two thirds using it as a beverage, some to excess. Whether these proportions are high for males of this age it is impossible to state.

PRESENTING SYMPTOMS

Giddiness, present in 242 cases, was the most common symptom. It was especially noted on sudden stooping or change of position, when drilling in the hot sun or when standing at attention, and was a frequent cause of dropping out of line at drill or when on a hike. As a rule it was momentary and was relieved by a short period of rest.

On prolonged effort or on sudden severe effort, dyspnea occurred in 239 instances. A hike or double quick time sent these men out of formation in short order. On hopping 100 times, a few showed marked dyspnea; but as a rule it was slight or of moderate severity. However, it seemed to be very troublesome, and "shortness of breath" was the complaint that sent many to the surgeon.

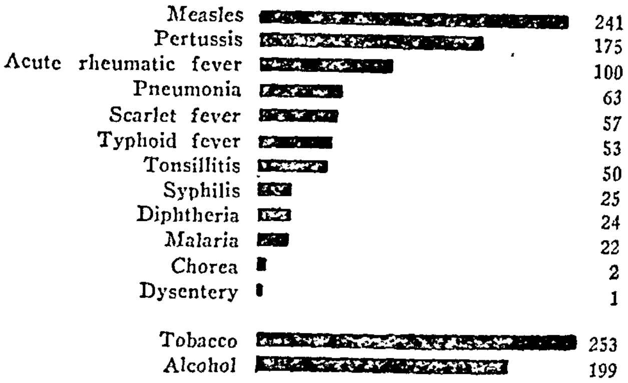

Chart 2.—Relative frequency of illnesses in the past.

Palpitation occurred in 218 out of the 300 cases.

Forty-seven gave a history of fainting. This does not include those with a single syncopal attack, but only those in which there was a history of repeated attacks.

In 154 there was a cough, which seems to be a common complaint among the recruits.

Varied complaints were received, but the foregoing seemed to be a group that persistently ran through the 300 cases.

PHYSICAL FINDINGS

The physical findings were interesting. Among the 300 men returned to the development battalion, 19 had hypertension with hypertrophy; 12, myocarditis; 9, mitral insufficiency; 8, hyperthyroidism; 5, aortic insufficiency; 4, hypertrophy of uncertain etiology; 3, mitral stenosis, and 1, tuberculosis.

This leaves 239 of the original 300 who belong to the large group of the so-called persistent tachycardias, certainly an important group. Two hundred and forty-eight were white, and fifty-two were colored. The average weight was between 120 and 150 pounds, with 190 between these limits. The extreme varied from 100 to 205 pounds. Cyanosis of the hands and feet occurred in 142, and a coarse, irregular tremor of the hands was present in 175 instances. The heart showed enlargement only when definite organic disease could be demonstrated. The apex beat was diffuse in 108 cases. A presystolic thrill was present in three cases of mitral stenosis, but was not demonstrated in any of the "persistent tachycardias." A definite systolic thrill occurred in six cases, although an indefinite suggestion of one was present in some of the rapid overacting hearts. The heart tones were distant in twenty-two instances, and in fifty-nine the first tone at the apex had lost its muscular element and was approaching the second tone in quality. The first tone at the apex was reduplicated in eight cases, and the second tone at the base twice. A systolic murmur was heard at the apex in 118 individuals, and at the pulmonic area in forty-one.

The three mitral stenosis lesions revealed presystolic murmurs over the apex, while over the third left interspace the diastolic blow of aortic insufficiency was found five times. A cardiorespiratory murmur was discerned nine times. A definite respiratory sinus arrhythmia was present in twenty-one cases, and premature systoles occurred in nineteen of the 300 cases. The systolic pressure fluctuated between 110 and 280, while the diastolic was more constant, varying between 80 and 100 mm. of mercury. With the exception of the broader top of the systolic curve, the two curves resemble one another quite closely (Chart 3).

An extremely interesting finding was the high percentage of the men who were returned with an enlargement of the thyroid gland. Many men coming to this camp were recruited from Ohio, Indiana and Illinois, or the so-called goiter belt about the Great Lakes. Many of these cases were passed as simple goiter and sent to the line organizations. Out of the 300 men that were returned to the development battalions because of cardiac distress, eighty-six, or 28.6 per cent., showed a definite enlargement of the thyroid gland. Eight were classed as instances of hyperthyroidism, as they presented an enlarged gland, a fine tremor, tachycardia, exophthalmos, sweating, flushing, a high pulse pressure, and other symptoms accepted as an expression of a toxemia due to an excessive, or a deranged, secretion of the thyroid gland. In seventy-eight, the thyroid was enlarged without question, the heart was rapid, a coarse, irregular tremor was evident in the hands, which were often cyanotic, and sweating in the axillae was profuse; but no exophthalmos, no fine tremor and no history of alimentary disturbances could be obtained, so that these cases were not the typical accepted textbook thyroid intoxications, but, certainly, the large number returning suggested that the so-called simple goiters may be potentially or actively toxic, or at least that the men who have the so-called simple goiters do not stand intensive training well.

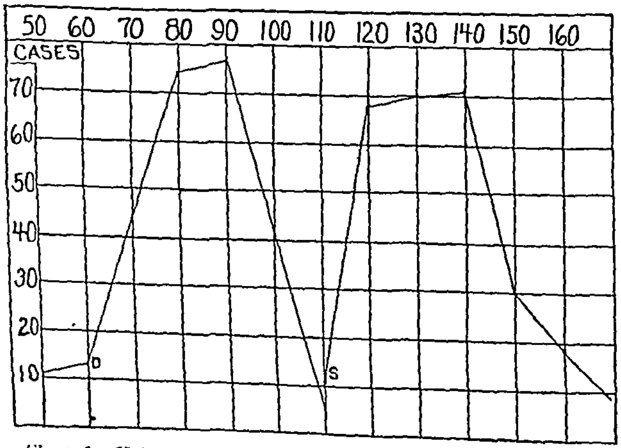

Chart 3.—Height of blood pressure in millimeters of mercury: *D*, diastolic; *S*, systolic.

A definite thyroid enlargement can easily be seen on the first examination, and if not classified, at least a notation should be made so that the individual may be kept under observation by the battalion or regimental surgeon.

The nervous element sometimes predominates in the individuals with a persistent tachycardia. Out of 100 cases classified by the heart examiners, twenty were also under observation by the neuropsychiatrists, who were doing their work independently in another part of the building. The accompanying table shows how the various diagnoses run in a series of such cases.

Probably some of the tachycardias will be eliminated through examination by other examiners, who may find the basis for the rapidity of the heart, which must be considered a symptom and not an entity. It is probable that neurologic conditions as well as some of the thyroid cases or endocrinopathies are classed among the so-called neurocirculatory asthenia cases. Many of the patients with persistent tachycardia complain of identical symptoms and present the same clinical picture. The diagnosis of neurocirculatory asthenia could be used to cover a large number of cases in which the eitology is uncertain, and, indeed, may be a group of conditions instead of a well defined clinical entity. Mackenzie says:

CARDIOVASCULAR AND NEUROPSYCHIATRIC DIAGNOSES IN PATIENTS WITH PERSISTENT TACHYCARDIA

Initial of Patient	Cardiovascular Diagnosis	Neuropsychiatric Diagnosis
J. N.	Simple tachycardia	Traumatic neurosis
F. H.	Nervous tachycardia	Psychoneurosis, neurasthenia
T. C.	Nervous tachycardia	Neurasthenia
E. W. F.	Nervous tachycardia	Epilepsy
A. S. W.	Hyperthyroidism	Hyperthyroidism
W. C.	Tachycardia	Epilepsy
J. A. C.	Tachycardia	Inebriety
J. Z.	Goiter, heart negative	Hyperthyroidism
D. C. L.	Persistent tachycardia	Neurasthenia
F. B.	Goiter, hyperthyroidism (?)	Hyperthyroidism
H. E. S.	Persistent tachycardia	Family tremor
W. W.	Goiter, tachycardia	Hyperthyroidism
S. W. R.	Persistent tachycardia	Imbecile
J. W. P.	Persistent tachycardia	Moron
J. J.	Tachycardia, hypertension	Psychoneurosis
J. J. G.	Nervous tachycardia	Intention tremor

> It has already been pointed out that when the heart is forced to do work beyond its normal capacity, or, in other words, after the reserve force has been exhausted, sensations of distress arise. The sensations may vary, at first, a slight breathlessness, a sensation of suffocation referred to the throat, or a tightness across the upper part of the chest. These are the signs usually experienced by healthy people whose hearts have for the time being been subjected to a severe strain. In addition to these sensations, pain may be induced, and be followed by other sensory disturbances, as hyperalgesia of the skin and subcutaneous tissues of the left chest wall.

In the group of men referred to the development battalion, the 239 cases showing a tachycardia showed a systolic-diastolic rate or energy index, as described by Barach, consistently over 20,000. Add to this the work put on a heart by the intensive training of the military routine, and one can readily see why a certain number complain of "heart trouble."

SUMMARY

1. Few organic valvular heart lesions escape during the routine examination of recruits.
2. Men with persistent tachycardia due to various causes form the largest group slipping by the examiners, later to return unable to perform full military duty.
3. The number of alcohol and tobacco users among those complaining of cardiac distress seems high. Sedentary occupation seemed to have little to do with the cases examined here.
4. A large number of men with enlarged thyroid glands develop cardiac symptoms when put under severe physical strain. Soldiers with enlarged thyroid glands should be kept under observation.

5. A certain percentage of the persistent tachycardias are fundamentally nervous conditions and can be eliminated by the neuropsychiatrists.

6. The persistent tachycardias are a group of conditions, the etiology of which must be determined before a rational plan of treatment can be prescribed.

RELATION OF METEOROLOGICAL CONDITIONS TO THE PREVALENCE OF PNEUMONIA

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While there seems little doubt that meteorological conditions have a distinct influence on the occurrence of pneumonia, and although a good deal of investigation has been carried on in the endeavor to throw light on this relationship, yet there is still a considerable lack of unanimity of opinion in our present views regarding this connection.

Concerning the relation of season to pneumonia, it is apparent that the greatest incidence from this disease occurs during the cold months. Seitz[1] showed that for a period of twenty years in Munich, 37 per cent. of the cases occurred in the spring, 32 per cent. in winter, 16 per cent. in autumn and 15 per cent. in summer. Anders[2] found the incidence in Philadelphia for a period of ten years to be: first quarter, 43.2 per cent.; second quarter, 24.5 per cent.; third quarter, 9.6 per cent., and fourth quarter, 22.8 per cent. Analyses that I have made of the deaths from lobar pneumonia in New York City for the years 1901 to 1915 show, for the first quarter, 38.1 per cent.; second quarter, 25.8 per cent.; third quarter, 10.9 per cent., and fourth quarter, 25.3 per cent. The monthly incidence is shown in Table 1, from which it will be seen that the maximal number of deaths occurs in March and the minimal number in August.

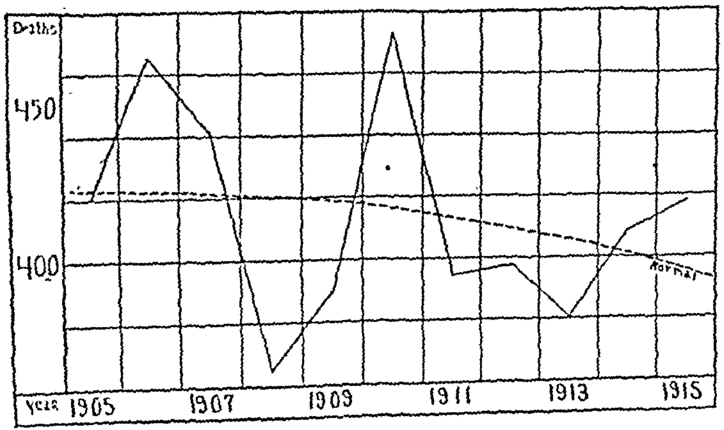

Chart 1.—Annual number of deaths and normal number of deaths from pneumonia, Providence, R. I., 1905-1915.

It was long recognized that temperature alone altogether fails to explain increases and decreases in the pneumonia death rate, and the answer was sought for in other meteorological conditions. As to the relation of temperature changes or variability, Aufrecht[3] found the incidence of pneumonia to be directly dependent on the prevalence of unequal and changeable meteorological conditions, especially on the occurrence of abrupt and marked changes of temperature at a time when the mean temperature was very low. Anders contends that abrupt oscillations of temperature per se have a restricted influence, if any, as a favoring factor. On the other hand, Fraenkel[4] has pointed out that, in certain localities (London, Dublin, Wurzburg and Tübingen) most of the pneumonia cases occur during those winter months in which, while the actual temperature is lower, yet the daily variation is less than during the spring.

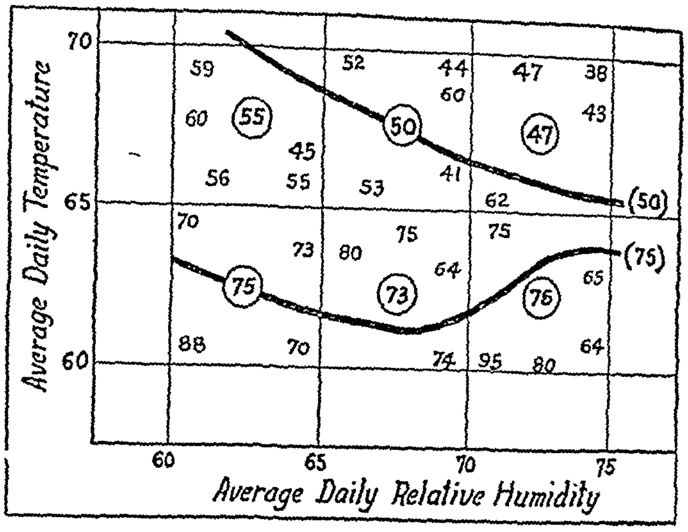

Chart 2.—Method of constructing the climograph: A sheet of ruled paper is divided into squares, each square corresponding to a certain combination of temperature and humidity, one square, for example, for a combination of temperatures between 60 and 65 F. and humidities between 60 and 65 per cent. The percentage mortality for each month is then recorded in the proper square determined by the combination of temperature and humidity prevalent for that month. The values recorded within each square are then averaged, and the resulting value is indicated within the small circle. Thus, 75 is the average percentage of mortality for months having a temperature between 60 and 65 degrees and a humidity between 60 and 65 per cent. Points of equal value from the standpoint of percentage of mortality are then joined by lines. Thus, the upper sloping line on the diagram is intended to pass through all points having a value of 50 per cent. In the middle square, the line passes through the point 50; but in the square to the left, having a greater value than 50, the line passes above this point, while in the square to the right, it necessarily must pass below the value of 47. The lower line, which is supposed to pass through all points having a value of 75 per cent., will be noted to pass below the value 73 (central square) and above the value of 76 (square on the right).

TABLE 1.—DEATHS FROM LOBAR PNEUMONIA, BY MONTHS, IN NEW YORK CITY (1901-1915)

Month	Deaths	Month	Deaths
January	11,331	July	3,259
February	10,555	August	3 021
March	11,943	September	3,358
April	10,103	October	4,582
May	7,974	November	7,101
June	4,704	December	10,448

Concerning the influence of relative humidity Riebe[5] believes that a contributing cause of pneumonia (in Posen) is found in excessive humidity. Baker[6] noted a slight correlation between a low absolute humidity and a low pneumonia incidence. Anders, who studied this matter in detail, does not come to any definite conclusion on this point.

In regard to the effect of barometric pressure, Jurgensen[7] maintains that a high barometer is coincident

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1. Seitz: Beircher Intellingsblatt, 1874.
2. Anders, J. M.: Meteorological Conditions in the Causation of Lobar Pneumonia, Am Med. **8**: 407, 1904; Social Conditions in America in Their Relation to Medical Progress and Disease, J. A. M. A. **40**: 1284 (May 9) 1903.
3. Aufrecht, in Nothnagel: Practice, Diseases of the Bronchi, Lungs and Pleura, p. 419.
4. Fraenkel, quoted by Osler and McCrae: Modern Medicine, 1907.
5. Riebe: Vrtljschr. f. gerichtl. Med. w. f. **40-41**: 128.
6. Baker, H. B.: Relation of Certain Meteorological Conditions to Diseases of the Lungs and Air Passages as Shown by Statistical and Other Evidence, Tr. IX Internat. M. Cong. **5**: 52, 1887.
7. Jurgensen: Traité de médecine **7**: 471.

with a diminished prevalence of the disease. Anders found that those months in which the highest death rate occurred showed maximal monthly barometric range; and vice versa, those months showing minimal barometric range gave the lowest death rate.

The influence of winds on pneumonia incidence has not been definitely established. Anders maintains that the direction of the wind (northwest) bears a close relation to the period of maximal mortality from pneumonia.

From this brief summary it is to be seen that the evidence presented by investigators is conflicting.

While engaged in an investigation of death rates from pneumonia in cities in New England and the North Atlantic states, I noted that these were markedly higher than those for cities in the interior or on the Pacific Coast. Having in mind the prevailing opinion that pneumonia is favored by a moist condition (dampness and cold), I desired to see whether the high rates in the cities along the Atlantic seaboard could be explained on this basis.

After an extended analysis of the more important meteorological conditions (relative humidity, temperature, wind, rainfall and barometric pressure) of the group of seaboard cities, and comparison with a group of inland lake cities (with low pneumonia death rates), no striking or significant points of difference between these two groups could be detected as far as their climatic factors are concerned.

TABLE 2.—WORKING SHEET FOR THE CONSTRUCTION OF CLIMOGRAPH FOR PROVIDENCE, R. I.

Year	Annual Mortality Recorded	Annual Normal Mortality	Monthly Normal Mortality	Actual Monthly Mortality in Percentage of Monthly Normal Mortality											
				January	February	March	April	May	June	July	August	September	October	November	December
1905	420	422	35	188	197	215	109	109	74	26	3	40	49	80	111
1906	466	422	35	137	157	217	223	128	54	54	26	31	80	74	149
1907	440	421	35	203	231	168	100	71	68	63	20	57	60	97	123
1908	363	420	35	217	194	168	117	68	34	17	23	20	49	63	66
1909	389	418	35	128	194	157	103	68	46	60	43	34	54	106	117
1910	473	416	35	200	174	220	191	114	74	49	28	14	55	100	128
1911	395	412	34	132	162	182	170	85	59	41	29	41	76	85	94
1912	398	409	34	150	180	180	117	82	65	53	29	50	65	79	121
1913	379	405	34	150	165	147	100	71	53	50	41	50	65	88	135
1914	408	401	33	215	194	167	200	64	48	36	33	42	76	73	88
1915	417	398	33	137	127	252	267	76	64	39	15	33	39	82	134

It is to be remembered that in dealing with so complex a problem as pneumonia, one city cannot strictly be compared with another, because of the many contributing factors. Such elements as social and housing conditions, and the race and age distribution of the population, are important controlling forces in determining a death rate. It was decided, therefore, to study the climatic factors separately in each city and then to compare these city by city. This plan was undertaken, and the methods used in the past by investigators in this field were followed; but after extended studies, again no significant results were obtained. At this time I was fortunate in hearing of a new method of plotting such records, devised by Prof. Ellsworth Huntington, research associate in geography at Yale University; and adopting this procedure, I began the investigation anew.

It should be stated at the outset that with the exception of one city (Providence, R. I.), the deaths studied are those for lobar pneumonia only (exclusive of bronchopneumonia). The reason for excluding the latter condition is that so many cases of the acute communicable diseases (diphtheria, measles, scarlet fever and whooping cough) terminate in bronchopneumonia that in order to get a true picture of the incidence of lobar pneumonia one should avoid complication by this group of diseases.

METHOD OF MAKING CLIMOGRAPH

Professor Huntington's method for the statistical study of the climatic effects depends on the use of a graph which he calls the climograph—a diagram representing the effect of climate on man. A brief discussion of the construction of the climograph is here given, and those desiring more details must be referred to his original article.[8]

The deaths are first recorded by months of occurrence. Allowances must be made for the varying number of days in different months, and hence a correction must be made. Thus, for February the correction is $^{31}/_{28}$, and for months of thirty days it is $^{31}/_{30}$. The yearly totals are then plotted, and a smooth curve is drawn through these points (Chart 1). From this it will be seen that a normal curve for the period is obtained, representing the conditions that would result if the fluctuations from year to year did not occur.

We are now interested in observing how one year differs from the other as regards mortality, and in order to obtain this difference we note to what extent any particular year is above or below the normal. Obviously, the difference between the recorded number and the normal number of deaths is ascertained by measuring the distance between the two curves. After the normal annual mortality has been determined from the curve, the division of this figure by 12 will give the normal monthly mortality (Table 2). The normal monthly values are then compared with the monthly values as actually obtained from the death returns, which are expressed as a percentage of the normal. These percentages are then plotted against temperature and relative humidity for the corresponding months.

After the percentages are recorded they are grouped in 5-degree intervals of temperature and humidity, and the average mortality of all months having a certain combination of temperature and humidity is determined. For instance, in Chart 2 in the interval corresponding to a temperature from 60 to 65 degrees and relative humidity from 60 to 65 per cent., the percentages when grouped and averaged give a value of 75. A line is then drawn through points of approximately equal value as to average mortality. This procedure corresponds to the drawing of isothermic lines, and the line in this instance might be called an isolethal line. Chart 2 shows in detail the method of construction of the climograph.

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[8] Huntington, E.: World Power and Evolution, New Haven, Yale University Press, 1918.

RELATION OF PNEUMONIA TO RELATIVE HUMIDITY

Chart 3 shows the relation of pneumonia to relative humidity for New York City plotted as indicated above. The sloping lines have been drawn in this case as in the other diagrams, through points having a value of 50, 75, 100, 125, 150 and 175. Thus, the 50 line means that it passes through all points that show a death rate of 50 per cent. below normal (the normal being 100). Similarly, the 125 line passes through all points that show a death rate of 25 per cent. above the normal

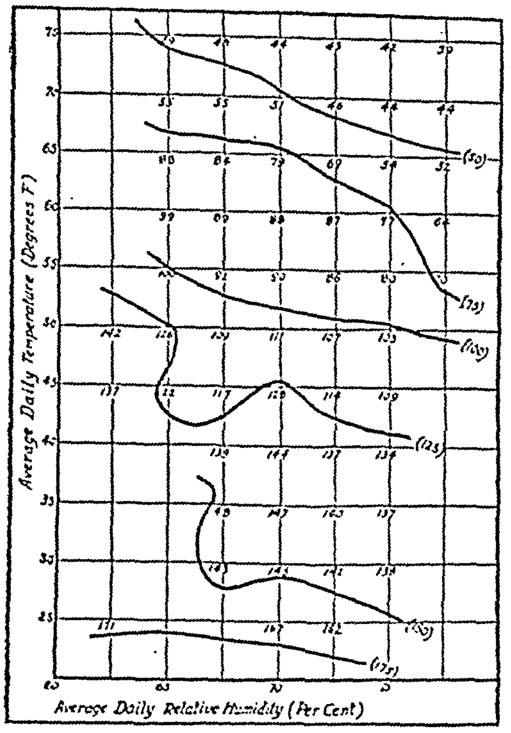

Chart 3.—Relation of daily temperature and relative humidity to the prevalence of pneumonia in New York City, 1901-1915. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and relative humidity expressed as a percentage of the annual average.

Again, the area between the 75 per cent. line and the 100 line means that on an average the deaths in months having any of the combinations of temperature and humidity falling between these lines range from normal to 25 per cent. *less* than normal. The area between the 100 line and the 125 line means that the deaths falling between these lines range from normal to 25 per cent. *more* than normal.

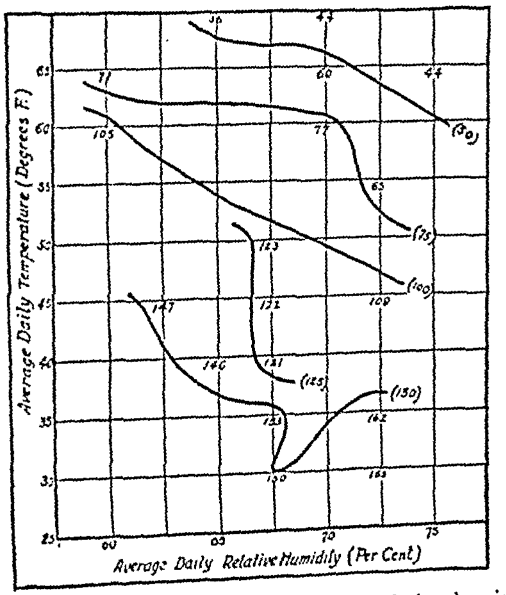

Chart 4.—Relation of daily temperature and relative humidity to the prevalence of pneumonia at Newark, N. J., 1906-1915. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and relative humidity expressed as a percentage of the annual average.

It is to be noted that all of these lines are nearly parallel. The bend in the 125 line is accounted for by the fact that two exceptionally high figures occurred at that point, which had a tendency to increase the value. It is further to be noted that the direction of these lines is downward, and it is this fact which is most significant. This is interpreted to mean that at a high relative humidity more favorable conditions obtain. For instance, it will be seen that the 125 line extends from 53 F. and 63 per cent. relative humidity to 40 F. and 77 per cent. relative humidity. In other words, the same death rate obtains at a colder and more moist condition than at a warmer and drier condition, in spite of the fact that, as is well known, the largest number of deaths occur during colder periods. This relationship, it will be seen, occurs for every line. The bottom line is somewhat flatter, but this is due to the relatively fewer observations for that area. The same thing can be seen by reading the values horizontally from left to right. Here again, with very few exceptions the values (percentage mortality) decrease as the humidity increases. For instance, it will be noted that with a temperature of 50 F. and with 62 per cent. relative humidity, the percentage mortality is 142, that is, 42 per cent. greater than normal. As we pass to the right (that is, as the relative humidity increases), the percentage mortality decreases. Thus, with 70 per cent. humidity (and a temperature of 50 F.), the percentage mortality is 111; and with 78 per cent. it is 100.

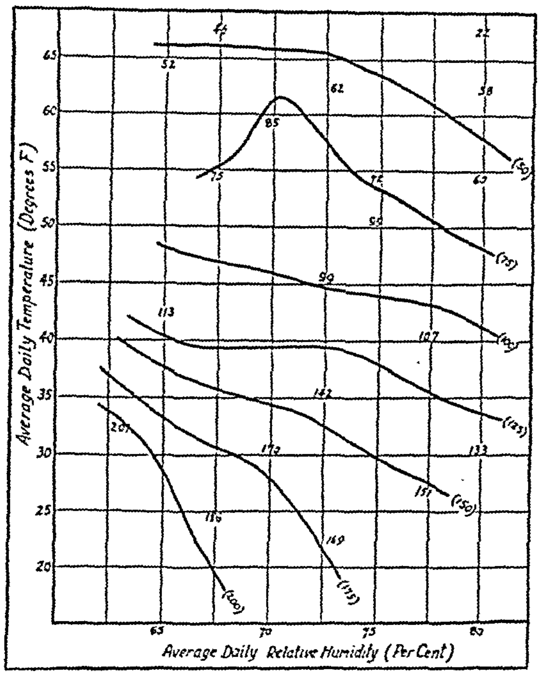

Chart 5.—Relation of daily temperature and relative humidity to the prevalence of pneumonia at Providence, R. I., 1905-1915. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and relative humidity expressed as a percentage of the annual average.

The conclusion which may be drawn from this chart is that for New York City at any given temperature fewer pneumonia deaths will occur under conditions of high relative humidity than at the same temperature with a low relative humidity.

Charts 4 and 5 show the results obtained for Newark, N. J., and Providence, R. I. It will be noted that here again the relations of pneumonia to relative humidity are similar to those observed for New York

City. Since these curves show such a close similarity, it is fair to combine them; and for this purpose the average values for each city have been properly weighted. The net result (that is, a composite picture weighted and smoothed) is shown in Chart 6. The same type of curve is of course obtained, namely, an oblique line. The irregularity in the 150 line is due to two exceptionally high values observed for New York City. Here, too, it will be seen that the values decrease from left to right, indicating that in cool weather, for instance, moist conditions are better than dry. In this respect the graph is surprising, for it is usually supposed that dry weather is best.

From a statistical standpoint it is to be noted that this curve represents a total of 516 observations of relative humidity and a total of 108,122 deaths, a large enough unit on which to base a deduction. It is safe, therefore, to conclude that for the cities under observation, a high relative humidity is a more favorable condition for a low pneumonia death rate than is a low relative humidity.

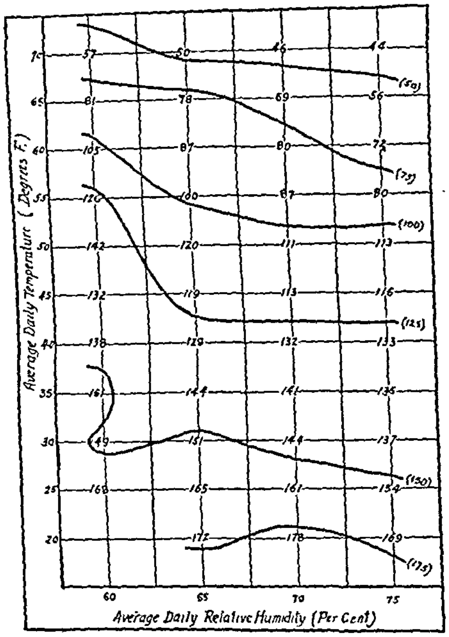

Chart 6.—Relation of daily temperature and relative humidity to the prevalence of pneumonia: Composite of New York City, Newark, Boston and Providence. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and relative humidity expressed as a percentage of the annual average.

RELATION OF PNEUMONIA TO TEMPERATURE VARIABILITY

It will be recalled that there has been a great diversity of opinion in regard to the part that temperature changes play as a factor influencing the prevalence of pneumonia. Anders maintains that abrupt oscillations of temperature have a restricted influence, and it should be pointed out that the negative result obtained by him is most likely due to a faulty measure of variability which he adopted. For his measure of temperature fluctuation he took the difference between the monthly mean maximal and monthly mean minimal temperature. Obviously, this monthly average figure does not reveal the true temperature changes from day to day. A more exact measure of temperature variability which shows the variation from day to day is the fluctuation of the mean *daily* temperature; and though its study is a very laborious procedure, this measure was adopted in obtaining the results to be described below.

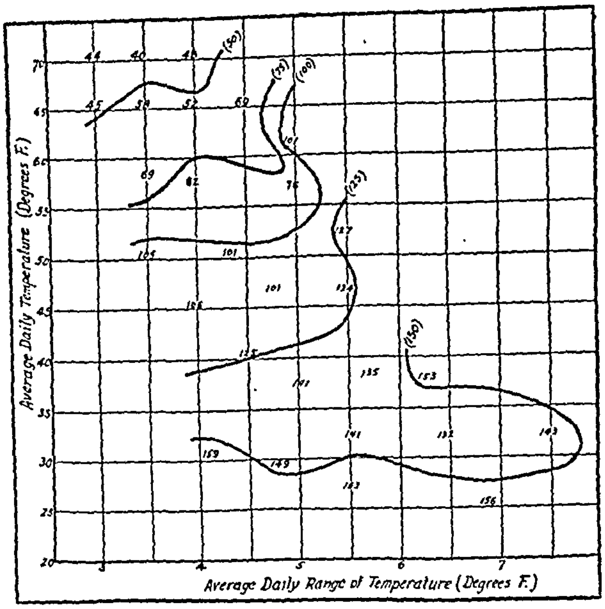

Chart 7.—Relation of daily temperature and daily range of temperature to the prevalence of pneumonia in New York City, 1901-1915. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and daily range of temperature expressed as a percentage of the annual average.

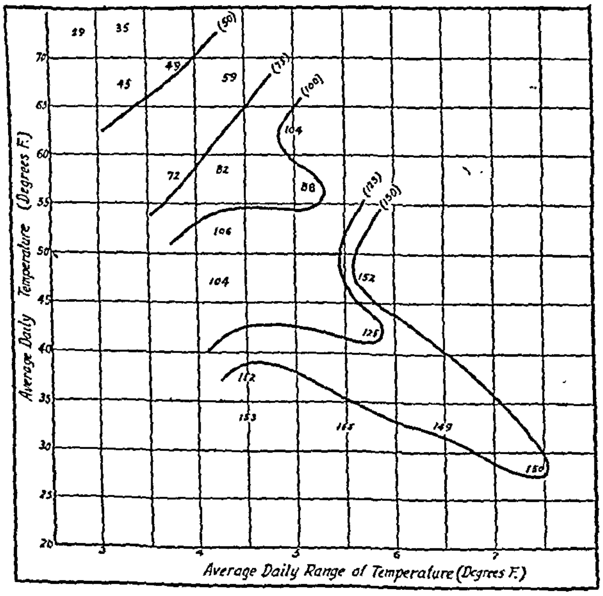

Chart 8.—Relation of daily temperature and daily range of temperature to the prevalence of pneumonia at Newark, N. J., 1906-1915. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and daily range of temperature expressed as a percentage of the annual average.

Since temperature per se is the most important variable influencing the occurrence of pneumonia, it was decided to study the incidence of the disease in relation to both temperature and temperature variability. Charts 7 and 8 show the results charted on this basis for New York City and Newark, N. J. It will be noted that here the lines are oblique and in the direction from left to right, indicating an increase in the death rate corresponding with increasing temperature changes. Thus, the 125 line indicates that on days with a temperature of 55 F. and with a variation of 5.5 degrees, the mortality is as great as on colder days

(38 F.) with a variation of 3.9 degrees. This relationship is more clearly shown in the composite of these four curves, shown in Chart 9. Here it will be observed that with the exception of the bottom curve, a straight line sloping upward from left to right is obtained. This means that (with a certain temperature) less favorable conditions are obtained when the temperature variability is great than when it is small. This relationship is also shown by reading the values at the same temperature from left to right (horizontally), and it will be noted that (with the exception of the region from 30 to 35 degrees) the values (percentage mortality) increase. In other words, this relationship means that at 48 F., with a daily temperature variability of 4 degrees, the same number of deaths occur as at 58 F., with a daily temperature variation of 6.5 degrees.

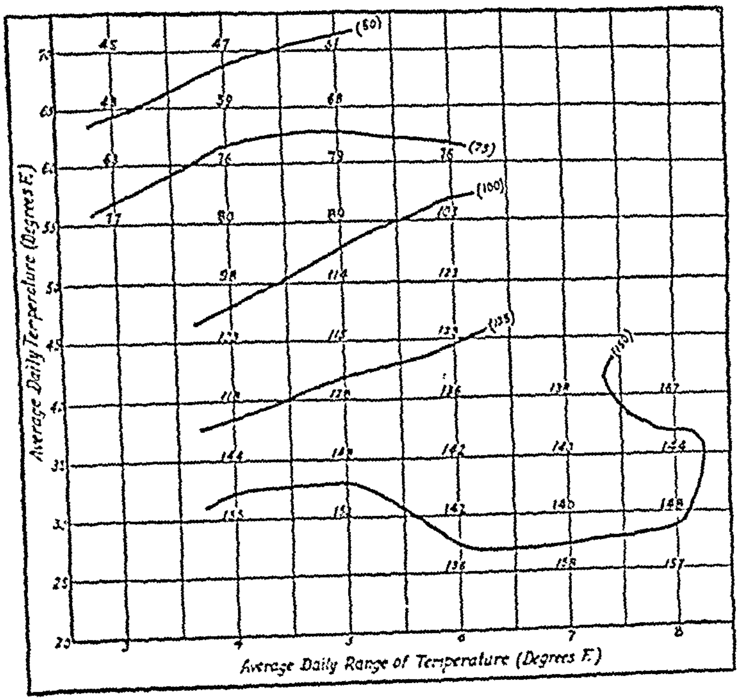

Chart 9.—Relation of daily temperature and daily range of temperature to the prevalence of pneumonia: Composite of New York City, Newark, Boston and Providence. The figures on this graph indicate the incidence of pneumonia that obtains at each specified combination of temperature and daily range of temperature expressed as a percentage of the annual average.

Returning to Charts 7 and 8, it will be seen that the curves are U-shaped. This may mean that a moderate amount of variability is good, while too little or too much variability is bad. This has been found to be true by Huntington, who studied the relation of temperature change to the death rate from all causes. In the case of Newark and New York it will be noted that the curve is distinctly U-shaped at the lower temperatures. That is to say, at this time of the year, when greater fluctuations of temperature occur, wide variations are better borne, possibly because the body becomes better accustomed to cold. However, this point is not conclusively demonstrated by this study, although the curves for New York and Newark are very suggestive.

RELATION TO WIND

I am inclined to believe that Anders overestimated the relationship of wind to the incidence of pneumonia. Table 3, constructed from his data, does not seem to show any such correlation.

That is, February, the month of maximal wind velocity (12 miles an hour), does not show the corresponding largest number of deaths, whereas January, which is the month of maximal deaths, shows a lower wind velocity than February, March or April. In regard to wind direction, Anders believes the assumption to be warrantable that as a rule the direction of the wind (northwest) bears a close relation to the period of maximal mortality from pneumonia. The effect of the northwest wind, according to climatologists, merely lowers the temperature, so that the relation as found by him really corresponds to one of temperature and not to wind direction.

This factor was also studied by me. Beginning with New York City for the years 1901-1915, no definite or distinct curves could be obtained, and it was not deemed advisable to continue the study for the other cities, since New York furnished the largest group of available data.

TABLE 3.—RELATIONSHIP OF WIND TO INCIDENCE OF PNEUMONIA

Month	Wind Velocity per Hr.	Deaths	Month	Wind Velocity per Hr.	Deaths
January	10.8	421	July	9.2	91
February	12.0	372	August	8.1	80
March	11.8	350	September	9.0	83
April	11.6	304	October	10.2	127
May	10.2	224	November	8.3	194
June	9.3	117	December	10.7	286

As a check on this method of studying the relation of meteorological conditions to pneumonia by means of the climograph, it was desired to see whether a disease that is prevalent under conditions different from those influencing the occurrence of pneumonia would also show a characteristic curve. For that purpose diarrhea and enteritis (under 5 years) was selected, since this disease occurs under conditions of high temperature. Chart 10, for New York City, shows that the lowest incidence from this group of diseases occurs when low temperatures prevail; and conversely, the greatest incidence is to be found under conditions of high temperature and humidity—a result that is in conformity with our present views regarding

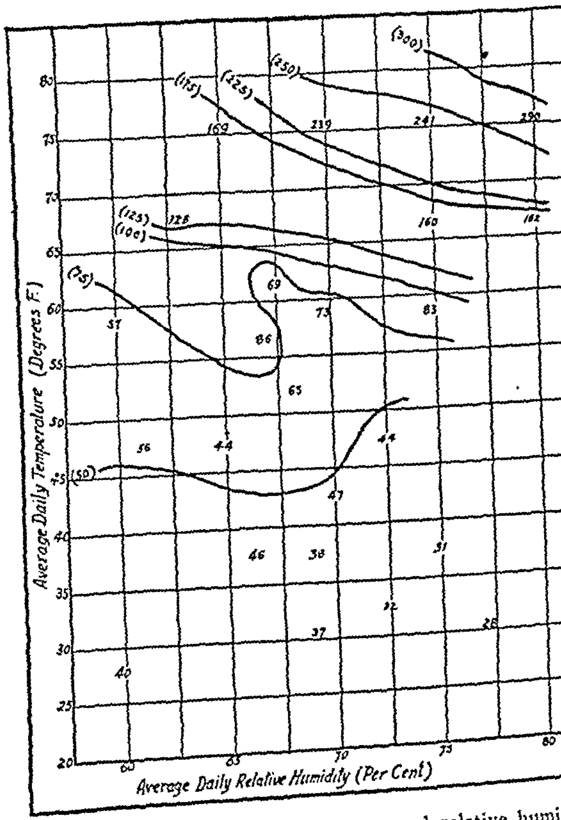

Chart 10.—Relation of daily temperature and relative humidity to the prevalence of diarrhea and enteritis (under 5 years) in New York City, 1905-1916. The figures on this graph indicate the incidence of diarrhea and enteritis that obtains at each specified combination of temperature and relative humidity expressed as a percentage of the annual average.

the causation of these diseases. It will be noted from this chart that from 65 F. and upward the death rate rises as the relative humidity increases (the percentages being read from left to right).

As a further check on this method I took cancer as a disease that should show no seasonal prevalence, and plotted the deaths in the manner above described, and the result is shown in Chart 11.[9] It will be seen that in this case, as would be expected, the incidence is practically equal under all conditions of temperature and humidity and hence no regular curve can be drawn through these points.[10]

SUMMARY

In studying the death rate of lobar pneumonia in its relation to meteorological conditions, it has been found that:

1. Temperature per se is the most important controlling factor.

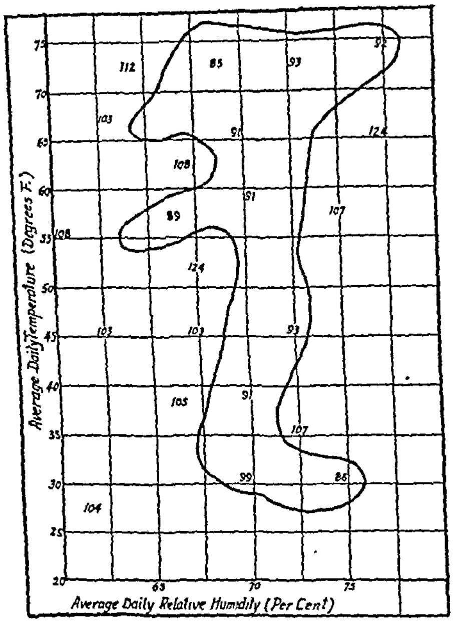

Chart 11.—Relation of daily temperature and relative humidity to the prevalence of cancer at Newark, N. J., 1906-1915. The figures on this graph indicate the incidence of cancer that obtains at each specified combination of temperature and relative humidity expressed as a percentage of the annual average.

2. A low relative humidity is conducive to a high death rate, and a high relative humidity to a low death rate.

3. Increases in the death rate correspond to increasing temperature variations.

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[9] The curve passes through all points having percentage mortality of 100.

[10] In addition to the references already given, the following will be found of interest:

Blake, J.: On the Climate and Diseases of California, Am. J. Med. Sc. **24**: 53, 1852.

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Edson, C. E.: A Meteorological Study of the Winter of 1903-1904, Boston M. & S. J. **151**: 92, 1904.

Gohlisch, J.: Die Witterungsverhältnisse und die Erkaltungskrankheiten in Breslau im Jahre 1890-1891, Inaug. Diss. M. Fac. d K. Univ. Breslau, 1897.

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Ruhemann, J.: Beziehungen des Sonnenscheins zu der Saison-Epidemie des Winters 1904-1905, Berl. klin. Wchnschr. **42**: 299, 1905.

Von Schuckmann: Der Einfluss des Windeschwindigkeit auf die Wärmeabgabe, Ztschr. f. Hyg. **46**: 183, 1904.

REACTION OF LEUKOCYTES AFTER VACCINATION WITH ARMY TRIPLE TYPHOID LIPOVACCINE *

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Cournmont and Devic[1] found that injection of typhoid and paratyphoid saline vaccines quickly cause a leukocytosis marked by polynucleosis with neutrophilic myelocytosis. In several cases after the use of an ether-killed vaccine, a mild mononucleosis followed the phase of polynucleosis. After the use of a heat-killed vaccine, mononucleosis following polynucleosis was a rarity. Hallion and Mery,[2] in their study of the modifications of postvaccinal leukocytosis after successive doses of heat-killed T. A. B. vaccine, found that their results agreed with those of Courmont and Devic to the extent that a polynuclear leukocytosis followed the injection of the vaccine which later gave place to mononucleosis. They found, also, that the leukocytic reactions after successive doses became progressively less intense. Mery and Girard[3] found that the polynucleosis following the injection of the heat-killed T. A. B. vaccine is independent of the method of injecting the vaccine. They found that after injection there is a polynuclear increase and then a tendency to mononuclear increase with a leukopenia. Mery and Girard[4] a little later presented the results of their study of the modifications of the leukocytes in the blood of man following vaccination with large doses of a heat-killed T. A. B. vaccine. They observed the same leukocyte changes as after smaller doses, but they were more marked. To sum up the experiences of the French investigators: Vaccination with the various vaccines T. A. B., whether given subcutaneously or intravenously, and whether ether-killed or heat-killed, is followed by a very rapidly appearing polynuclear leukocytosis which reaches its maximum within from four to eight hours and disappears within forty-eight hours. In some cases it is followed by a mild leukopenia marked by a relative mononucleosis.

The present study has been undertaken in an effort to determine the reaction of the white blood cells in individuals vaccinated with the Army triple typhoid lipovaccine.

PLAN OF STUDY

Subjects.—The subjects of the study were eighteen healthy young men who throughout the course of the investigation were student officers at the Army Medical School, Washington, D. C. Several of the subjects were at various times during the study victims of conditions such as laryngitis, pharyngitis, bronchitis, frontal sinusitis, gastro-intestinal derangements of an acute transient nature, and in one instance what appeared to be an attack of renal colic. These departures from the normal exercised very little if any influence on the curves.

Average Normal Figures.—Before the vaccine was administered, leukocyte counts were made on four successive days for the purpose of establishing the normal figures for each individual. These counts were made in the forenoons of July 17, 18, 19 and 20.

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* From the Department of Pathology, Army Medical School.

[1] Courmont, J., and Devic., A.: Compt. rend. Acad. d. sc. **163**: 534-535, 1916.

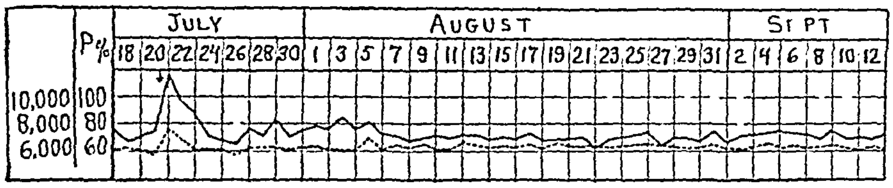
[2] Hallion, L., and Mery, H.: Compt. rend. Soc. d. biol. **79**: 1026, 1916.

[3] Mery, H., and Girard, L.: Compt. rend. Soc. d. biol. **80**: 138-140, 1917.

[4] Mery, H., and Girard, L.: Compt. rend. Soc. d. biol. **80**: 140-142, 1917.

Vaccination.—At 1 p. m., July 20, each of the subjects received 1 c.c. of the lipovaccine prepared at the Army Medical School and containing 0.4 mg. of the dried bacterial substance of each of the organisms *Bacillus typhosus*, *B. paratyphosus* A and *B. paratyphosus* B. Some of the subjects had been vaccinated previously, and some had not. Two of the subjects had had typhoid fever, one six years before and one eight years before. These two men (4 D and 17 U) had never been vaccinated.

Time Relationship of Counts to Meals.—It is very probable that after August 15 the variation in the leukocyte count and in the percentage of polymorphonuclear neutrophils is not dependent on the lipovaccination, but is due entirely to physiologic influences, chief among which is probably the process of digestion. An effort was made to have the subjects report for the counts at the same hour each day; but from the very first this was found to be impracticable because of the nature of the occupation of the subjects. The program of studies at the school varies from day to day, so that the men found it impossible to report at any one hour day after day, but were compelled to seize any opportunity that presented itself to report for the count. It is interesting to note that in the composite table and graphs all the little daily variations have been flattened out.



Composite graphs of the eighteen cases, showing the daily average total leukocyte count (solid line) and percentage of polymorphonuclear neutrophils (broken line). Arrow indicates when vaccine was injected.

METHODS OF WORK

Pipets.—In the beginning a different white blood cell counting pipet was provided for each individual. The pipets were not standardized, so it was considered highly advisable to employ the same pipet for each individual during the course of the study. This was made impossible in three cases by the breakage of pipets. This happened in Cases 1 A, 8 La and 9 Lc. However, it would seem that the substitution of other pipets for those broken in these cases made no great difference in the leukocyte counts.

Manner of Counting Leukocytes.—The technic of counting leukocytes that we employed in this series is that which is usually used. Puncture of the finger tip or, in a few cases, of the lobe of the ear (as the patient preferred) was done with an ordinary spring lancet. The blood was drawn to the 0.5 mark of the pipet, and the diluting fluid, 2 per cent. solution of acetic acid in distilled water, was drawn to the 11 mark. The mixture was thoroughly shaken and in most instances counted within the succeeding hour, being shaken again immediately before counting. The ordinary Thoma hemacytometer with the Zappert-Ewing ruling was employed, and the cells in the four corner squares and in any one of the other squares were counted. The sum of these cells was multiplied by 40 (which is the product of 2, for the full cubic millimeter, and 20, for the dilution). Only one drop from each pipet was counted as a rule, and this was taken after the contents of the pipet had been thoroughly shaken and about one half expelled. Whenever a count appeared to be exceptionally high or unduly low, it was verified by the examination of a second drop.

Manner of Making Differential Counts.—The spreads for the differential counts were made on slides. The slides used were thoroughly cleaned by immersion for twenty-four hours in a sulphuric acid-potassium bichromate mixture. They were then washed in running hot water, immersed in 95 per cent. alcohol and dried out of alcohol.

A drop of blood of the size to give a satisfactory spread was picked up on the end of one slide and then drawn, rather than pushed, along the surface of another slide. The suggestion of Bulloch[5] was adopted in respect to leaving a free edge along the length of the slide. This edge was invariably found to be thin and very rich in well-stained, flattened out leukocytes. The spreads were permitted to dry in the air and were then fixed and stained with Wright's modification of the Romanowsky stain. The differential counts were made with a mechanical stage and an oil immersion lens, 100 leukocytes being counted in each preparation.

COMMENT ON COMPOSITE TABLE AND CHART

The average normal white cell count for the entire series, based on the average of all of the counts for the four days before vaccination, was 7,224.2. This rose on the day after vaccination to 11,758.9; then during a period of five days it fell so that on the eighth day after vaccination it was 6,575.6. Then followed an undulant rise and fall covering a period of thirteen days which reached its high points, July 29 and August 3, in counts of 8,184.4 and 8,331.1, respectively. It terminated, August 8, in a count of 6,844.7. Thereafter the leukocyte count remained at normal.

The average normal leukocyte count, based on the counts for the four days before vaccination, was 7,224.2. For the nineteen days following vaccination, during which time occurred the primary and secondary periods of elevation, the average number of white cells was 7,872.4. Then throughout the rest of the study the average count was 7,122.9. The average normal percentage of polymorphonuclear neutrophils was 60.6. It rose on the day after vaccination to 76.1, but fell so that on the third day after vaccination it was 60.8. It remained at about 63 during the rest of the study, falling below 60 on only one occasion. July 26, concomitant with a leukocyte count of 6,575.6, the percentage was 57.2.

These composite graphs show very plainly the salient features of the leukocyte reaction to this type of vaccination. There appear to be two periods of elevation of the leukocyte count, a primary rise which occurs immediately after vaccination which is followed by a gradual diminution in the white cell count over a period of five days, and a secondary rise, much less in degree than the primary but of very much longer duration. The primary rise is accompanied by a moderate polynucleosis. The depth of the following decline is accompanied by a mild mononucleosis. The secondary rise is unaccompanied by any change in the differential count.

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[5] Bulloch, W.: Tr. Path. Soc. 56: 334-344, 1915.

SUMMARY AND CONCLUSIONS

Eighteen healthy young men were inoculated, July 20, 1918, each with 1 c.c. of the Army triple typhoid lipovaccine containing, per cubic centimeter, 0.4 mg. of the dried bacterial substance of each of the organisms *Bacillus typhosus*, *B. paratyphosus* A and *B. paratyphosus* B. For four days prior to vaccination and for fifty-six days after vaccination they were examined as to their total leukocyte and differential counts. The results of this investigation are presented in the form of a composite table and composite graphs. The study of these records makes it apparent that subcutaneous injection of the triple typhoid lipovaccine is succeeded by a rapidly appearing polymorphonuclear neutrophil leukocytosis which gradually disappears during a period of from four to six days and reappears immediately thereafter for a period of from seven to fourteen days. In exceptional cases the initial leukocytosis and the secondary leukocytosis, one or both, are followed by a mild degree of leukopenia with mononucleosis; but in the majority of cases, vaccination with the lipovaccine does not lead to diminution in the number of leukocytes or of the percentage of polymorphonuclear neutrophils, but on the contrary, actually induces a polymorphonuclear neutrophil leukocytosis, of varying degree, over a period of approximately two weeks.

COMPOSITE TABLE OF THE EIGHTEEN CASES, GIVING THE DAILY AVERAGE TOTAL LEUKOCYTE COUNT AND THE PERCENTAGE OF POLYMORPHONUCLEAR NEUTROPHILS, ETC.*

	W. B. C.	P.	S. L.	L. M.	A.	B.	T.
July 17	7,518.9	61.4	23.0	8.4	1.3	0.9	5.1
18	6,781.1	62.7	21.4	10.6	1.9	0.6	3.0
19	6,945.5	60.1	29.9	5.2	1.3	0.6	3.4
20†	7,651.1	58.3	29.6	6.3	1.7	0.9	3.2
21	11,758.9	76.1	14.1	5.4	0.9	0.2	2.7
22	9,634.4	67.2	18.9	18.1	0.7	0.2	4.0
23	8,642.2	60.8	21.6	10.1	1.3	0.9	4.7
24	7,157.8	61.9	20.8	11.1	0.7	0.3	5.2
25	6,921.7	62.1	25.7	5.6	1.0	0.4	4.1
26	6,575.6	57.2	28.8	8.2	0.6	0.4	4.8
27	7,831.1	63.1	26.7	4.8	0.9	0.6	4.5
28	7,251.1	63.9	25.9	4.0	0.8	0.9	5.1
29	8,184.4	64.3	25.6	3.5	2.0	0.4	4.1
30	7,072.0	62.4	38.2	2.9	0.3	0.1	5.5
31	7,642.2	62.7	29.3	2.6	1.2	0.5	3.2
Aug. 1	7,868.2	63.9	27.5	2.9	1.5	0.6	3.6
2	7,727.1	62.2	31.0	2.6	0.8	0.4	2.9
3	8,331.1	61.1	29.6	2.6	0.9	1.1	4.7
4	7,600.6	60.6	32.7	2.2	1.0	0.5	3.0
5	7,976.0	64.5	28.0	2.8	0.9	0.3	4.3
6	7,340.0	59.8	29.4	2.9	1.3	0.5	3.2
7	7,214.1	65.2	23.7	4.2	1.8	0.6	4.5
8	6,844.7	62.8	25.5	4.2	2.2	0.5	5.5
9	7,090.0	64.9	25.2	3.1	1.6	0.8	4.4
10	7,213.8	62.4	27.1	3.3	1.5	0.6	3.9
11	6,864.7	62.0	27.6	3.7	2.2	0.2	4.2
12	7,257.5	66.5	24.6	3.7	1.1	0.4	3.1
13	7,289.4	64.7	25.4	4.4	1.2	0.6	3.9
14	6,931.8	62.5	26.4	4.1	1.6	0.4	4.1
15	7,117.8	65.7	25.2	3.1	1.4	0.4	4.3
16	7,057.8	64.3	25.4	4.2	1.3	0.2	4.3
17	7,172.2	65.7	24.4	4.4	1.1	0.2	4.1
18	6,788.9	61.8	28.4	5.3	1.2	0.2	3.1
19	6,949.3	57.1	23.7	4.3	0.8	0.3	4.7
20	6,945.6	64.1	26.3	3.5	1.7	0.6	3.8
21	6,952.9	62.7	28.4	3.6	1.8	0.3	3.4
22	6,220.0	63.7	26.1	3.7	1.9	0.5	4.1
23	6,915.6	63.2	26.6	4.3	1.7	0.4	3.7
24	6,935.6	62.8	29.4	3.4	1.2	0.2	2.9
25	7,242.4	66.2	25.7	3.4	1.4	0.6	3.3
26	7,566.0	65.7	26.0	3.5	1.1	0.5	3.2
27	6,693.3	66.3	26.2	2.4	1.0	0.4	3.6
28	7,080.0	63.6	28.0	3.8	1.6	0.4	2.8
29	6,955.3	63.4	28.4	3.8	1.6	0.5	2.5
30	6,755.6	63.4	28.3	3.2	1.4	0.4	3.3
31	7,478.8	63.8	28.1	3.5	1.5	0.6	2.9
Sept. 1	6,807.5	61.7	28.4	4.3	1.7	0.9	2.9
2	7,150.6	61.8	29.4	4.4	1.6	0.6	2.4
3	7,446.1	63.4	29.8	3.1	0.9	0.5	2.4
4	7,486.7	64.9	27.3	3.0	1.6	0.4	3.5
5	7,570.0	63.3	27.3	4.2	1.5	0.5	3.1
6	7,487.8	63.8	26.4	4.1	1.7	0.4	4.1
7	7,423.5	64.4	24.2	4.4	1.0	0.4	4.0
8	7,015.7	64.2	27.9	3.7	1.4	0.3	2.6
9	7,586.7	65.3	26.1	4.1	0.7	0.6	3.2
10	7,037.8	62.6	28.3	4.1	1.5	0.5	2.5
11	7,290.0	60.9	29.4	4.2	1.9	0.8	2.9
12	7,002.5	62.4	29.9	3.6	1.5	0.4	2.3
13	7,312.2	60.9	26.9	4.8	1.2	1.0	4.7
14	7,417.5	63.2	28.0	4.4	2.5	0.1	1.8
First 4 days: Totals	28,896.6	242.5	103.9	30.5	6.2	3.0	14.7
Averages	7,224.2	60.6	26.0	7.6	1.6	0.8	3.6
Next 19 days: Totals	149,573.2	1,201.8	493.0	100.7	20.8	9.4	80.5
Averages	7,872.4	63.3	25.9	5.3	1.1	0.5	4.2
Last 37 days: Totals	263,545.9	2,359.3	1,000.2	142.1	53.6	17.1	126.0
Averages	7,172.9	63.8	27.0	3.9	1.5	0.5	3.4

* Key: W. B. C., total leukocyte counts; P., percentage of polymorphonuclear neutrophils; S. L., percentage of small leukocytes; L. M., percentage of large mononuclear cells; A., percentage of acidophils; B., percentage of basophils; T., percentage of transitional cells.

† Vaccine was injected at 1 p. m., July 20. The counts for that day were made shortly before the vaccine was given.

HISTOPATHOLOGY OF SUPERFICIAL BURNS *

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The purpose of this paper is to point out the findings at necropsy in fatal cases of extensive superficial burns, and the bearings of these findings on the causative factors in the production of symptoms and death.

Although much has recently been written on the treatment of superficial burns, little has been reported in recent years on the pathology. Divergent views are held as to the cause of the symptoms following extensive superficial burns, and as to the cause of death in the fatal cases. The clinical manifestations have been interpreted by some as indicating shock produced by extreme affection of the nervous system, and by others as indicating profound toxemia.

The results of the experimental work have been rather contradictory and inconclusive. Some of the experimental work points to the existence of a toxin acting in the body after extensive burning of the skin, some to loss of function of the erythrocytes and the production of thrombi as the essential factors in the causation of symptoms and death, while the work of others points to severe affection of the nervous system as the main factor. In general, the results of the experimental work indicate that if toxins are present in the tissues after extensive superficial burns they are complex and have not proved easily demonstrable.

In 1897, Bardeen[1] reported the necropsy findings in five fatal cases. In all of his cases, which were in children, death occurred within a few hours after the burns were received. In all of the cases Bardeen described rather characteristic changes in the lymphoid tissues of the body. These changes consisted in an early edematous swelling of the follicles, followed by necrosis and an accumulation of large, flat, phagocytic endothelial cells. These changes were found to be most marked in the centers of the follicles. He also noted parenchymatous degeneration of the liver and kidneys. He states that the heart muscle was quite normal and that examination of sections from the brain, suprarenal, pancreas, thyroid and thymus revealed nothing of note. As a result of his study of these five cases, Bardeen feels that one of the main causes of death is toxemia caused by alterations in the blood and tissues.

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* From the Department of Pathology, Syracuse University College of Medicine.

[1] Bardeen, C. R.: A Study of the Visceral Changes in Extensive Superficial Burns, J. Exper. Med. 2: 501, 1897.

It seemed that further study of the tissues at necropsy in uncomplicated fatal cases of superficial burns might disclose other evidences of more or less characteristic lesions resulting from selective action of any poison that might be present. The work of Bardeen suggests that the lesions described were produced by some circulating poison having a selective action on the lymphoid tissues. It would seem that a further study of such cases at necropsy and of cases in which death did not occur as soon after the burning as in Bardeen's series might throw further light on the question.

With this idea in view I have made an anatomic study of ten fatal cases of superficial burns. Of these cases, five were in children and five in adults. The ages varied from 19 months to 60 years. The interval between the time the burns were received and death varied from a few hours up to twenty days. In one case, death occurred within five hours; in three, at the end of one day; in one, at the end of two days; in one, at the end of three days; in one, at the end of four days; in one, at the end of six days; in one, at the end of sixteen days, and in one at the end of twenty days. The burns were produced in a variety of ways, including scalding, actual fire from burning clothes, explosion of a boiler, and burning gasoline.

FINDINGS AT NECROPSY

The necropsy findings in the different cases coincided to such an extent that I shall not give a detailed account of the findings in each case, but shall indicate any differences that occurred in the general description of the findings in the various tissues.

External Examination.—In all cases, large areas of the body surface showed evidences of burns. The degree and extent of the burns varied, most cases presenting areas over which the epithelium had apparently peeled off. In none of the cases was there evidence of charring.

Suprarenals.—Most prominent and characteristic of the necropsy findings were the changes in the suprarenals. The suprarenals were makedly swollen and deep red. There was marked edema of the perisuprarenal fat tissue. On section, the cortex and medulla appeared markedly swollen and showed reddish streaks suggesting congestion of the blood vessels. Certain areas appeared homogeneously deep red, suggesting extensive hemorrhage obliterating the normal markings.

On microscopic examination there was evident marked congestion of the blood vessels with scattered areas of hemorrhage penetrating among the parenchymal cells. There were in the blood vessels in some cases possible evidences of hemolysis and of thrombi, but these were not definite enough to warrant any positive statements. The gland cells were pale staining and much swollen. Many showed apparent hydrops. Necrotic gland cells being invaded by polymorphonuclear and endothelial leukocytes were not infrequent. The lesions in general were more or less comparable to the central necrosis occurring in the liver of the guinea-pig in chloroform poisoning, except that in the suprarenals the process was diffuse.

In the cases of a duration of less than twenty-four hours, the changes were slight as compared with the cases of longer duration; however, even in the five hour case there was present definite congestion and swelling of the glands. In all of the cases of more than twenty-four hours' duration, the changes in the suprarenals were very striking and apparently characteristic. In one case the left suprarenal measured 9 by 3 by 1.5 cm., and weighed 20.5 gm.; the right measured 7 by 4.5 by 2.5 cm., and weighed 25 gm. (the average normal weight being from 4 to 7 gm.). This was the case of a railroad fireman, aged 21, who received extensive superficial burns of the face, forearms, thighs and legs as a result of a boiler explosion, and died three days later. As far as I know, such marked changes in the suprarenals, at least in man, have not been observed in any other condition. About a year ago I published a note[2] describing these changes as occurring in the suprarenals in four fatal cases of superficial burns.

Kolosko,[3] in 1914, described what were apparently similar findings in the suprarenals in a number of fatal cases of extensive superficial burns. He interpreted the findings as representing hemorrhagic infarction of the glands.

Spleen.—Grossly, the spleen did not appear unusual in any of the cases unless it was that the splenic nodules appeared rather prominent in some of the cases. Microscopically, in all of the cases of less than three days' duration there were found rather characteristic lesions in the lymph nodules. Their development could apparently be studied in the lesions of different durations. Early there occurred apparent edema of the germinal centers of the lymph nodules. There was apparent necrosis of the cells of the germinal centers evidenced by karyorrhexis. Endothelial leukocytes accumulated in the centers of the nodules. These endothelial leukocytes were phagocytic for the necrotic cells and for the lymphoid cells of the nodules. Occasionally some of the endothelial leukocytes fused to form foreign-body giant cells. In many instances this process continued until the lymph nodule was represented by a large central area filled with phagocytic endothelial leukocytes surrounded by a narrow ring of lymphoid cells. These lesions apparently developed very soon after the burns were received, and were evident in all of the cases of less than three days' duration. In the cases of more than three days' duration, there were areas corresponding in distribution to the lesions described in the earlier cases. These areas were relatively homogeneous and eosin staining with occasional vesicular nuclei. At the periphery of some of these were seen occasional cells resembling the endothelial leukocytes seen in the earlier lesions. These appearances suggest that the areas represent the earlier lesions in process of hyaline degeneration and resolution or repair. The spleens in some cases showed in the blood sinuses what might be evidences of thrombi and of hemolysis; but these were not definite enough to warrant any positive statements.

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[2] Weiskotten, H. G.: Fatal Superficial Burns and the Suprarenals, J. A. M. A. **69**: 776 (Sept. 8) 1917.

[3] Kolosko: Ueber Befunde an der Nebenniere bei Verbrennungstod, Vrtljschr. f. gerichtl. Med. 1, Supp. **47**: 217, 1914.

Lymph Nodes.—The changes in the lymph nodes correspond in all cases with changes described in the lymph nodules of the spleen. These changes were found in the cervical, bronchial and mesenteric lymph nodes. The involvement of the lymph nodes, irrespective of their location and involvement of germinal centers of the nodules, suggests that the changes are due to the presence of a poison in the circulating blood and not to a poison brought to the nodes by way of the lymph stream.

Heart.—In two cases, areas of hemorrhage were found beneath the endocardium lining the left ventricle. No other gross changes were evident in the heart. Microscopically there was evidence of injury to the muscle fibers. In four cases (one day, one day, two days and three days), there was evident hyaline degeneration of the muscle fibers. In one case (three days) there was definite necrosis of some of the fibers, with a reaction represented by an accumulation of polymorphonuclear and endothelial leukocytes. These lesions are apparently entirely comparable to the lesions occurring in the heart in diphtheria, scarlet fever and other severe toxemias.

Kidney.—No constant changes were observed macroscopically. Microscopically, in four of the cases (one day, one day, one day and two days), fibrin thrombi were present in the capillaries of the glomerular tufts. The fibrin occurred in threads and network and in solid masses more or less completely occluding the vessels. According to Mallory,[4] this type of lesion "can be produced experimentally in animals by the injection of diphtheria toxin."

Gastro-Intestinal Tract.—Four of the five cases of more than two days' duration showed punctate areas of hemorrhage into the mucous membrane of the stomach or intestine. In the case of twenty days' duration, punctate ulcers were evident in the mucous membrane of the stomach and duodenum. The lymphoid tissue of the intestine showed changes comparable to those found in the spleen and lymph nodes.

Liver.—No constant changes were evident in the liver on gross examination. Microscopically, in two cases, foci of necrosis of liver cells were evident.

Pericardial Cavity.—In the two-day case a few punctate areas of hemorrhage were evident beneath the epicardium.

Lungs.—In two cases there was found moderate congestion of the lungs, and in two cases moderate edema. Otherwise the lungs showed nothing unusual.

Peritoneal Cavity.—In three of the six cases in which death occurred within three days, there was definite congestion of the abdominal vessels. Otherwise the results of the examination of the peritoneal cavity were negative.

Other Tissues.—Of the other tissues, the pleural cavities were examined in all cases; the pancreas was examined in four cases; the thymus in five cases, and the brain in one case. Such examination showed no changes that would warrant any statement in regard to them in connection with this class of cases.

COMMENT

From these necropsy findings it is evident that there was present in these fatal cases of superficial burns a definite pathologic condition. In addition to the lesions described by Bardeen, there occurred definite and rather characteristic lesions in the suprarenals, heart muscle and kidneys. The lesions found in the lymphatic tissue and in the suprarenals are especially striking. The lesions found in the lymphatic tissues are apparently identical with those occurring in fatal cases of diphtheria and with those produced experimentally in animals by the injection of diphtheria toxin and certain other organic poisons. The changes found in the suprarenals are apparently identical with the changes occurring in the suprarenals of guinea-pigs dying several days after the injection of diphtheria toxin and like, but much more marked than those found in the suprarenals of man in fatal cases of diphtheria. The changes found in the heart muscle are also similar to those occurring in cases of diphtheria and other severe toxemias and as far as I know occur in no other conditions. The changes occurring in the liver, kidneys and intestine, although not so striking, are similar to those occurring in severe infections and toxemias. It would seem that the foregoing pathologic conditions can be explained only by the presence of a poison, circulating in the blood stream, and having more or less specific action on certain of the cells of the body. The similarity of the lesions to those occurring in diphtheria suggests that the poison is somewhat similar to diphtheria toxin, at least in its action on the cells of the body. The question as to the source of the poison in this class of cases can be determined only by further experimental work. Whether or not such experimental work will demonstrate a toxin for which an antitoxin can be produced is an important question.

The occurrence of the lesions described above in the cases in which death occurred within a relatively short time after the burns were received, and the greater severity of the lesions in these cases, indicate that they were due to the burns and not to any undiscovered complications following the burning. In connection with this matter it may be pointed out that the lesions are progressive for a relatively short period. For example, as was pointed out above, retrogression of the lesions of the lymphoid tissues begins at the end of three days, and there is no evidence of progression after this period. The same is true of the other lesions described. This suggests that the production of the poison occurs only within the first three days.

Although evidences of capillary thrombi were found in a few instances, it is obvious that the lesions found could not have resulted from the formation of such thrombi. I will not attempt to discuss the part played by so-called "shock" in this class of cases. Suffice it to say that all of the lesions found in this series of cases suggest the presence of a more or less specific circulating poison as an important factor in the production of symptoms and death.

CONCLUSIONS

1. In ten fatal cases of uncomplicated superficial burns, more or less characteristic lesions were found in the suprarenals, lymphatic tissues, heart muscle and kidneys.

2. These lesions, together with those found in the other tissues examined, indicate the presence in this class of cases of a more or less specific poison in the circulating blood.

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[4] Mallory, F. B.: The Principles of Pathologic Histology, 1914, p. 558.

DRUG ADDICTION

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The subject of drug addiction has come to occupy a place of considerable importance, not only in civil life but in the military and naval service as well, and constant efforts are being made to reclaim these derelicts and to prevent the spread of the habit.

In this campaign, the importance of an early and positive diagnosis of drug addiction cannot be overestimated. The addict is regarded, and rightly, as being untrustworthy, unreliable and as a particularly dangerous person to engage in any hazardous occupation. His participation in any naval or military undertaking would expose others as well as himself to the possibility of serious consequences.

From the standpoint of the prophylaxis of drug addiction, the addict himself is responsible in many cases for enlisting new recruits. This tendency to spread the habit is believed to be more prevalent than is generally recognized. In some cases it takes the form of active work in encouraging the use of drugs. There are two reasons for this activity: first, the financial gain derived from bringing in new recruits and selling them the drug, and second, the desire on the part of many addicts for company. The majority of addicts have friends or acquaintances who themselves take the drug. Many of them state that they patronize so-called "clubs" where they indulge in their favorite drug. Investigation of these places often reveals merely a room, badly furnished and ill kept, where the habitués may drop in at odd times of the day or night and relieve themselves by taking a "jab," a "sniff" or a "smoke." These places serve to keep the knowledge of drug addiction from their employers and in many instances from even their immediate family. They also allow the addict quietly to sleep off the effects of a large dose, which he may have felt he needed, without being disturbed.

A large percentage of addicts begin the use of drugs while still minors, and it is during this susceptible period of youth that contact with drug habitués is particularly dangerous. A drug addict should be regarded as a focus of infection who through contact with susceptible individuals serves to spread the habit. The average person is unable to secure drugs on his own initiative, but once his circle of acquaintances enlarges so as to include some member of this large army of noneffectives, he finds habit-forming drugs within easy reach as long as he can produce the price. The addict finds that he does well to cooperate with the distributor, and almost never will give evidence or information that discloses the source of supply. As he becomes more confirmed in the use of the drug, he realizes his dependence more and more; and particularly after running short a time or two and experiencing the pangs of sudden withdrawal of the drug, his chief aim in life comes to be the having on hand of a sufficient supply. Many of these addicts will hoard the drug and keep a supply laid away against the time when they may find it hard to procure. It is not uncommon to find the addict penniless and without sufficient clothing, food or shelter, but still clinging to his reserve drug supply, which represents to him the only means of escape from his mental and physical suffering. He pawns his own effects and those of his family, not excepting the kitchen stove, the family clock and his wife's wedding ring. Having exhausted all these resources, he begins to look outside of his own family and to pawn the effects of other people. When reduced to this state he becomes particularly dangerous to society, and will stop at nothing to secure funds with which to purchase the drug for his relief.

DIAGNOSIS

The early diagnosis of addiction will serve in great measure to curtail many of the evils of confirmed addiction and limit the spread of the scourge.

It is an almost certain rule that the drug habitué will endeavor to conceal the fact of his addiction. The instinct of self preservation prompts him to guard his secret carefully. He realizes that his employer would no doubt discharge him at once. His difficulties in procuring the drug would become greatly increased, once it became known that he was an addict. Furthermore, the fear of the law in most cases would prompt him to cover his trail by every conceivable means. In the majority of instances he realizes his own unfitness, and also that his survival depends on concealing the fact of his unfitness.

At first glance it might appear that all these efforts on his part would be useless, that his failing would be fairly easy to discover, and that the ravages caused by his addiction would be discernible to even the layman. The average person, when speaking of drug addiction, has a mental picture, possibly inspired by some stage impersonation he has seen, of an individual more or less emaciated, with sunken cheeks, sallow complexion, and marks of the needle on the arms and body, who nervously starts at the slightest sound and constantly feels himself as if to establish his own identity, who has a habit of sniffing up his nostrils, and who always carries a hypodermic syringe and the necessary ammunition in his coat pocket. While this picture may represent the habitué in some respects, particularly in the late stages of his addiction, it fails absolutely to identify the great army of drug addicts that exists in this country.

The majority of our institutions to which drug addicts are admitted and cared for are not called on to establish the fact of drug addiction. In the patients turned over to them as a rule this fact has been definitely established. In the great majority of cases the diagnosis is arrived at in one of two ways. Either the victim voluntarily seeks relief from the drug, the expense of which has become a serious burden for him, or he is caught with the drug in his possession or in the act of administering it to himself.

As a matter of fact, the diagnosis of drug addiction, contrary to the generally accepted belief, is one of the most difficult problems the physician has to meet. In many instances the habitué indulges in drugs for several years without even his family or associates being aware of the fact. If he is careful as to dosage and the time and place of taking the drug, he may proceed for years and get along fairly well. In examining drug addicts at Bellevue Hospital, this fact was frequently brought out strongly. In one case the addict, after having taken heroin for two years, married, and it was not till a year and a half later that his wife discovered he was a drug addict. He stated that he never took the drug at home but went to one of the so-called "clubs" for regular doses. On one occasion he carelessly took a larger dose than usual, and returning home, was found asleep in a narcotized condition.

In another case, a chauffeur, employed by a physician, took heroin for six months and had no trouble. Finally, he took a larger dose than usual, and while driving the car became sleepy; after he had been roused several times, his condition became evident.

A third case that illustrates this point was that of a sailor who took morphin for more than a year aboard ship and was not suspected. His supply evidently came to him diluted with lactose, as is frequently the case. Getting a fresh supply one day that was not diluted he promptly developed symptoms of acute morphinism and was discovered.

These cases serve to illustrate the fact that drug addicts who are careful to regulate their dosage may pursue their usual occupation for years without being discovered. To establish the diagnosis in such cases, observation over a period of time is necessary. If the addicts are carefully observed, they will almost invariably show signs that lead to a positive diagnosis.

There are two periods in the daily routine of the addict that lead to discovery if unduly prolonged. The first period is ushered in by a feeling of slight nervousness or uneasiness which warns him that it is about time for another dose. If this period is prolonged, he begins to suffer more or less acutely, and cramps and muscular pains become prominent and he has the usual symptoms of sudden withdrawal of the drug. Under usual routine he never gets to this stage, as his equilibrium is reestablished by the drug. But if for any reason the supply is not forthcoming or is delayed, his predicament will usually become noticeable. The second period, during which the diagnosis is much easier, is shortly after the drug is administered and its effect is taking place.

If the addict does not measure his dose carefully, he runs the risk of getting an overdose, which frequently leads to his discovery. He becomes drowsy and may even be found sound asleep at some unusual hour, when his narcotized condition becomes apparent to his employer or to his family. These two periods will occur in the life of every addict to a greater or less degree, depending on the skill with which he regulates the use of the drug, and will tend to become more frequent, the longer he indulges. It is during one of these periods that his condition is usually discovered. He may show no marks of a needle and may stand a most rigid examination without being detected; but when kept under observation over a period of time, he will usually show unmistakable signs.

The early diagnosis of these cases and the placing of the patients under treatment is of the greatest importance to civil communities as well as to the military and naval forces of the country.

IMPORTANCE OF PREVENTION

It is coming to be recognized more or less generally that the solution of the drug addiction evil does not rest on any particular specific or cure. In fact, there is no specific for the condition. It is a comparatively simple matter to get the patient to the stage at which he is taking no more drugs, but it is a much more difficult problem to keep him from backsliding. Our great effort should be along the lines of preventive medicine, and it is here that the early diagnosis of addiction again becomes important.

It appears to be impossible to legislate drug addiction out of existence as long as the drugs themselves exist and are available. The most stringent laws that legislators have been able to enact have failed in great measure to reduce this availability. The addict better than any one else is familiar with the process of obtaining the drug. After passing through an institution for the cure of addiction he comes out with this knowledge still in his possession. If he should meet with reverses or suddenly be called on to face a trying situation, it is only natural that he should seek an outlet by a return to the drug. If the drug were not available, it does not follow that he would seek no other avenue of escape. In fact, if he feels himself unable to face the situation squarely there are several routes that he might take under these circumstances. But these avenues of escape are gradually being closed, and in most cases failure to obtain the drug after having passed through an institution for relief of the habit, and after going for some time without it, would not result in serious consequences.

DRUGS USED BY ADDICTS

Heroin appears to be the drug most easily obtained at present; as a result, the great majority of addicts are heroin users. Also, heroin admits of easy adulteration, requires no apparatus to take, and can be readily distributed. While heroin occupies a place of some importance in the equipment of the physician, it is by no means indispensable, and it could be discarded entirely without serious results.

Cocain and morphin are used by only a small percentage of addicts. The effects of cocain are rather violent, and the addict will usually state that he lost no time in shifting to heroin as soon as he could get it. He realizes that cocain is a much more dangerous drug and requires much greater care in dosage. Its effects are more frequently noticeable, and he is more liable to discovery following its use.

Morphin from the standpoint of the addict is much more desirable than cocain. It is not apt to produce the violent reactions frequently seen after a slight overdose of cocain, and the mental effect appears to be better.

However, the ideal drug for the addict seems to be heroin, and we would do well to pay particular attention to this narcotic. It does not follow that if the manufacture of this drug were stopped entirely we should have the majority of addicts under control; but we should have greatly decreased the availability of habit-forming drugs and should have removed one of the worst offenders among the narcotics.

Opium and its derivatives, ever since their action was known to man, have been the great narcotics on which the individual who feels himself inadequate to face life squarely has rested and drifted with the tide. If we dispose of heroin, it is probably from among these derivatives that substitutes will be sought.

Present Requirements of Physical Education.—We dare not be satisfied with the products of the physical education of yesterday. The value of that physical education has been grimly measured and mercilessly tested since we entered this great war. If you accept the standards of our first draft, you must admit that a rejection of 30 or 40 per cent. of our young men because they were physically unfit for military service would seem to show that our physical education has been only 60 or 70 per cent. effective.—Thomas A. Storey, M.D., State Legislation for Physical Training.

RATIONAL DRUG THERAPY *

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The administration of drugs for remedial purposes should be based on a thorough knowledge of physiology, pathology and the principal physiologic actions, as well as the more important secondary actions of the drugs to be administered. The physician should always bear in mind that drugs do not cure. They may be made valuable adjuncts in our endeavor to restore normal function in an abnormally functioning organ.

In administering drugs, one should also bear in mind that the taking of medicine should not be made a punishment or a disagreeable task to the patient, and therefore it is the duty of the prescriber to administer the medicinal agent in as palatable a form as possible. Furthermore, it often happens that the desired physiologic reaction is not obtained from a given drug because of improper mode of administration, or because of failure to select from a given group of drugs the particular drug best indicated in a given case. To illustrate this, I shall take up a few groups of drugs and endeavor to show how selection may be made from the different drugs of the same group in given cases.

SOPORIFICS

In the group of soporifics we find in most textbooks chloral, its derivatives and compounds, the opium series (opium, morphin, codein, ethylmorphin hydrochlorid, heroin, etc.), and the bromids.

Let us now consider the principal action and principal secondary action of each.

The chloral group depresses the central nervous system and, eventually, completely paralyzes it. It has no specific effect on pain sensation, but it does depress the reflexes of the spinal cord, and affects last of all the medulla oblongata, and therefore practically does not depress the respiratory center to any extent. It becomes at once evident that its administration as a hypnotic in a case of insomnia due to pain would be contraindicated, while, on the other hand, it is eminently the remedy of choice in cases of insomnia due to nervous excitation, especially when such excitation is of spinal or reflex origin.

When we bear in mind, furthermore, that chloral is irritating to skin and mucous membranes, it follows logically that it should be administered in high dilution and preferably in combination with some bland substance, so that we would prescribe our chloral hydrate in combination with glycerin or mucilage of acacia and with plenty of water.

Opium and its derivatives, on the other hand, have a pronounced selective action on pain sensation and on respiration, markedly reducing both in doses too small to affect general consciousness. This is especially true of its principal alkaloid, morphin. Therefore, opium and its alkaloids are indicated as analgesics rather than as hypnotics, especially when the rate of respiration is above normal. The possibility of morphin addiction should, of course, be borne in mind.

Bromids act directly as depressants on the central nervous system, reduce the reflexes and impair the passage of impulses from the sensory to the motor cells. Therefore, in a case of sleeplessness due to a moderate degree of excitation, bromids would be indicated. But we must remember that (1) a certain degree of concentration of bromids in the circulating blood and in the tissues is required; (2) bromids are fairly rapidly eliminated, especially in the presence of chlorids; (3) bromids, like all halogen derivatives, are irritating to mucous membranes in concentrated solution, and (4) last, but not least, they have a rather disagreeable taste. Therefore, the administration of the bromids should begin some time before the desired effect is to be obtained, and frequent small doses will bring about greater physiologic response than a single large dose. When a concentration of bromids is to be maintained in the blood and tissues for some time, as in the treatment of epilepsy, the patient should be kept on a practically salt-free diet. The bromids should be administered in high dilution to prevent gastric irritation, and the taste may be corrected by the addition of acid fruit syrups or by a combination of a small amount of citric acid with simple syrup.

STIMULANTS

Turning our attention to the stimulants, we find again a number of drugs or group of drugs, each of which has its special indication. For instance, nux vomica and especially its principal alkaloid, strychnin, has selective action on the spinal cord, and its application is therefore indicated in conditions in which the ordinary normal stimuli fail to bring about the corresponding muscular response, whether of striped or unstriped muscles, generally referred to as lack of tonus.

The caffein group of stimulants must be divided into two subdivisions: caffein and its salts acting on the central nervous system as well as on the kidneys, while theobromin has but little effect on the central nervous system. Caffein produces restlessness to the point of insomnia and mental confusion, has but little effect on the circulation, and quickens the rate of respiration while at the same time decreasing its amplitude. It becomes at once apparent that in such cases as we saw in the recent epidemic of influenza, associated with or followed by lobar and lobular pneumonia, with increased rate of pulse and respiration, together with mental excitation to the point of delirium, caffein was distinctly contraindicated. If it was given with a view of aiding renal excretion, because of the oliguria found in these cases, it seems to me that the drug of choice should have been theobromin sodium salicylate, or better still, one of the many saline diuretics, such as the citrates and acetates of ammonium, sodium or potassium. On the other hand, caffein would be indicated in cases of mental or psychic depression, and particularly in cases of depression incident to poisoning.

For a similar reason, that is, its accelerating effect on the respiratory rate, atropin was contraindicated in these cases, excepting when it was desired to check secretions, as in impending edema; but its influence on secretion to the extent of lessening perspiration would also have to be considered, and for this reason morphin would probably be preferable because of its selective action in lessening all secretions except those of the sweat glands. Neither would camphor be indicated in the above mentioned cases, because in physiologic doses its effect on heart and respiration is relatively small and in larger doses may cause an acceleration,

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* Read before the Bronx County Medical Society, Nov. 20, 1918.

especially of the heart rate, rather than a slowing. But the dilating effect of the camphor group on the peripheral blood vessels could well be utilized by external applications of alcoholic menthol solutions.

The group of drugs that stands out as eminently satisfactory in the conditions mentioned is the digitalis group. The principal two members deserving prime consideration are digitalis, its preparations and active principles, and those of strophanthus. One must bear in mind that absorption of digitalis from the gastro-intestinal tract is slow, and that, even after it reaches the blood, the effect on the heart is markedly delayed. But such action, once begun, is sustained for some time, while the opposite is the case with strophanthus, in which cardiac reaction is more prompt but not long sustained. Therefore, for emergency cardiac stimulation the strophanthus group is indicated, while the digitalis group has its place when conditions permit delay of reaction until the cumulative but sustained effect is reached.

IMPROPER ADMINISTRATION OF DRUGS

As an illustration of improper mode of administration of drugs, let me cite two examples. Magnesium sulphate is well known to all of us as an efficient saline laxative; but few physicians remember that the rapidity of its action is in inverse proportion to the concentration. The greater the concentration, the slower is the action, and, inversely, the less the concentration the more prompt the response. Therefore, if we wish to obtain prompt results from a dose of Epsom salt it should be administered with a large amount of water, while in cases in which delayed action is required or absorption of fluids from the tissue is aimed at, the less water used for conveying it, the better the results. This drug, too, may be made palatable by the addition of a little citric acid and sugar or by the admixture of some orange juice to the water used as solvent.

Another example of improper drug administration is furnished by the usual methods of prescribing digestants. We know that carbohydrate digestion, initiated in the mouth, is continued for some time in the cardiac end of the stomach until the gastric secretion attains a certain degree of acidity. Then, about thirty minutes after food reaches the stomach, the pepsin and rennin in the presence of the hydrochloric acid begin their enzymic action. It becomes at once apparent that the administration of pepsin and hydrochloric acid immediately after eating will inhibit any carbohydrate digestion in the stomach. Yet most prescribers direct pepsin to be taken immediately after eating. Logically they should not be taken until from thirty to forty-five minutes after eating. In the case of pancreatin medication even greater sins are committed. This collection of enzymes is normally active in the small intestine, in an alkaline medium, and begins its work in from two to three hours after eating.

Pancreatin belongs to the proteins and is subject to all the chemical laws affecting them. If introduced into the stomach at the height of its activity in a form accessible to the action of the gastric enzymes, it will, at least to a great extent, be digested and will not pass into, nor be available for its own enzymic function, in the small intestine. For these reasons pancreatin should be administered in a form in which it will not readily be acted on by the gastric secretions, that is, it should be prescribed in an enteric coated capsule, and should be introduced toward the end of the normal period of gastric digestion, which would be about two to three hours after meals. And it would surely be a mistake to administer pepsin, rennin, diastase, pancreatin and hydrochloric acid in one solution. Another thing to be remembered in connection with enzymes is the fact that alcohol inhibits their action, and therefore the administration of these in the form of elixirs or wines appears illogical.

In the time allotted for a paper which, I fear, I have more than exhausted, one is necessarily compelled to limit oneself to broad outlines, rather than to indulge in detailed minutiae. I have therefore endeavored merely to point out the possibilities of careful analysis of drug action within the realm and reach of the general practitioner of medicine.

INFLUENZA AT THE UNITED STATES NAVAL HOSPITAL, LEAGUE ISLAND, PA.

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Influenza first made its appearance in epidemic form at the U. S. Naval Hospital, League Island, Pa., Sept. 12, 1918, on which day sixty-six patients were admitted from the receiving ship extension barracks. The epidemic continued in unabated form until September 17, when the crisis was reached.

Our clinical observations were made on 600 cases of influenza of which 168 patients developed pneumonia; of the latter, forty-eight died. The disease spread more rapidly among men in barracks than among those living in tents.

In general, the prognosis in uncomplicated cases of influenza is good as to life. Several instances of acute pulmonary tuberculosis have been observed following an attack of influenza, and it is very probable that latent tuberculosis lesions are converted into active foci by the influenza infection. Influenza occurring in patients with chronic diseases, such as nephritis, is a very serious matter.

TREATMENT

No specific treatment has been found to date. A more or less routine treatment adapted to the individual requirements was carried out in this hospital with uniformly good results. On admission the patient was put to bed and magnesium sulphate ordered. Ten grains of pulvis ipecacuanhae et opii (Dover's powder), with a glass of hot unsweetened lemonade, tea or milk were then administered. A mustard plaster usually relieved the pains or oppression in the chest. If not, a small dose of codein or morphin was given. In all cases the coal tar products were withheld on account of the prostration already present. When the general muscular pains and headaches were quite severe, acetylsalicylic acid in 5 grain doses was given with benefit. Quinin was used with caution because of the possibility of middle ear disease. In practically all cases one-half ounce of liquor potassii citratis was given every three hours until the acute stage was passed. Stimulation, usually consisting of tincture of nux vomica or strychnin, caffein and whisky were frequently employed. Whisky was not given when nausea or other gastro-intestinal symptoms were present. Water in large quantities was insisted on. The bowels were kept open daily. Food was prescribed according to the patient's appetite, regardless of fever. Certainly no good can come in starving patients so desperately in need of the proper kind of nourishment.

The treatment of pneumonia was entirely symptomatic. If Type I pneumococci could be isolated, the specific serum was employed. Glucose in 15 per cent. solution, with or without sodium bicarbonate given by rectum by the drop method is an aid in combating severe toxemia. Venesection was resorted to in a number of cases with absolutely no benefit.

USE OF VACCINES

After the nature of a drowning person grasping at a straw, a stock influenza vaccine was used as a preventive in fifty individual cases and as a curative agent in fifty other uncomplicated cases.

TABLE 1.—FORMULA OF THE VACCINE

	Per C.c.
Influenza bacillus	200,000.000
Pneumococcus	100,000 000
Streptococcus	100,000,000
Staphylococcus pyogenes-aureus	200,000 000
Staphylococcus pyogenes-albus	200 000 000
Micrococcus catarrhalis	200,000,000

As a preventive it was given every forty-eight hours for four doses. The first injection was 0.3 c.c., the second 0.6 c.c., and the third and fourth 1 c.c. In no case was there any severe reaction, and none of the individuals contracted the disease. Most of them were hospital apprentices working in wards for from twelve to fifteen hours a day. Of course, other safeguards were insisted on, such as wearing a mask continually while in the ward and observing the strictest cleanliness of the hands and body. Some few, however, who wore a mask and were not injected became victims of the infection. Let it be said here that the careful and consistent wearing of a properly fitting mask can be expected to afford a reasonably certain protection against the disease.

In the fifty uncomplicated cases treated with vaccine, none of the patients developed pneumonia, and but one developed pleuritis. After a stubborn and prolonged resistance, the pneumonia patients succumbed. The course of the disease in the others, with few exceptions, was definitely shortened, and prostration seemed less severe. The patients apparently not benefited were those admitted from four to seven days after the onset of their illness. These were out of all proportion to the number of pneumonias that developed and the severity of the infection of the control cases. The effects were always more striking, the earlier the vaccine was administered.

The number of patients treated with vaccines and the number immunized with it is entirely too small to allow of any certain deductions; but so far as no untoward results accompany their use, it would seem unquestionably safe and even advisable to recommend their employment.

LABORATORY STUDIES

The bacteriologic studies of this epidemic made thus far have not been conclusive, though most of the observers have demonstrated *B. influenzae* in a considerable proportion of their cases.

Little, Garofalo and Williams[1] failed to find *B. influenzae*, but did find a gram-negative diplococcus in all their cases.

Gotch and Whittingham[2] have found *B. influenzae* in 8 per cent. by cultural methods and in 62 per cent. in stained smears from the sputum, and attributed the infection to a gram-negative coccus, "perhaps in association with the influenza bacillus."

Averill, Young and Griffiths[3] were able to cultivate the Pfeiffer bacillus from the sputum.

Matthews,[4] using a trypsinized blood agar medium, found this organism in all of twelve cases studied. His cultures were made from the nasopharynx by means of the test tube.

Martin[5] found the influenza bacillus both in smears and in cultures and believes the epidemic to be true influenza.

Krumbhaar[6] takes issue with Little, Garofalo and Williams, finding *B. influenzae* in three fourths of a small group of cases.

Keegan,[7] in this country, had rather unsatisfactory results from sputum cultures and mouse inoculations, but found *B. influenzae* in some of his cases. In cultures from the lungs, however, in twenty-three cases, he was able to isolate the organism in 82.6 per cent., 31.6 per cent. being pure cultures.

Barnett[8] made several unsuccessful attempts to isolate the organism from the sputum and nasopharyngeal smears at a naval base in Scotland.

It is well to repeat, however, what has been pointed out before,[9] that the causative organism was not discovered during the epidemic of 1889, but in 1892, when Pfeiffer demonstrated the bacillus that bears his name.

In the studies conducted at the League Island Hospital, the medium used was unlaked human or rabbit blood agar titrated to plus 0.5 and citrated bouillon, containing blood and having the same reaction.

One hundred and five cultures were made from the sputum, thirty-four from the nasopharynx, eleven from the laryngeal region and eleven from the eye. In only four cases was *B. influenzae* isolated in pure culture, though in some twenty cases an organism similar in morphology and staining characteristics was present, all obtained from the sputum. Stained smears of sputum showed an organism resembling the Pfeiffer bacillus in a good percentage of the cases studied. Numerous other organisms were found, the most important being the pneumococcus in the majority of the cultures, streptococci, the nonhemolytic strain predominating, *Micrococcus catarrhalis* and staphylococcus.

The presence of these organisms, especially the pneumococcus and streptococcus, while of no very great significance, is interesting in view of the very common complication of pneumonia.

Blood cultures were negative in all but one of twenty-six cases. In this instance, a case of pneumonia in which the patient was moribund at the time, a Type

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[1] Little, T. R.; Garofalo, C. J., and Williams, P. A.: Lancet **2**: 34, 1918.

[2] Gotch, O. H., and Whittingham, H. E.: Brit. M. J. **2**: 82, 1918.

[3] Averill, C.; Young, G., and Griffiths, J.: Brit. M. J. **2**: 111, 1918.

[4] Matthews, John: Lancet **2**: 104, 1918.

[5] Martin, C. J.: Brit. M. J. **2**: 281, 1918.

[6] Krumbhaar, E. B.: Lancet **2**: 123, 1918.

[7] Keegan, J. J.: The Prevailing Pandemic of Influenza, J. A. M. A **71**: 1051 (Sept. 28) 1918.

[8] Hewlett, A. B., and Alberty, W. M.: Influenza at Navy Base Hospital in France, J. A. M. A. **71**: 1056 (Sept. 28) 1918.

[9] Bacteriology of the Influenza Pandemic, editorial comment, Brit. M. J. **2**: 139, 1918.

IV pneumococcus was isolated. The blood was planted in agar and citrated bouillon and cultivated under both aerobic and anaerobic conditions. The results of this study were somewhat disappointing so far as the demonstration bacteriologically of *B. influenzae* as the etiologic factor in the epidemic at this station was concerned. This may have been due to unfamiliarity with the organism and inappropriate culture mediums, though in cases in which positive growths were obtained, the organism was not especially difficult to find and it grew readily on the medium.

PNEUMONIA

Forty-two cases of pneumonia were studied by the Avery method for type determination. In twelve specimens of sputum the results were unsatisfactory, the bouillon cultures showing streptococci, gram-negative bacilli similar to the influenza bacillus, both in association with other organisms, and few, if any, pneumococci.

TABLE 2.—TYPE DETERMINATION BY AVERY METHOD

	Number	Per Cent.
Type I	7	16⅔
Type II	7	16⅔
Type III	5	12
Type IV	11	26
Unsatisfactory	12	28

In one fatal case both a Type II and a Type III pneumococcus was found.

Tables 3 and 4 give the results of the leukocyte and differential counts in uncomplicated influenza and in influenza complicated by pneumonia and pleurisy.

From the tables it will be seen that in uncomplicated influenza the tendency is toward leukopenia, this being well marked in some cases. In the pneumonias complicating influenza, leukocytosis was present in the majority of instances.

TABLE 3.—BLOOD COUNTS IN INFLUENZA

Case	Number of Leukocytes	Polymorphonuclears, per Cent.	Small Mononuclears, per Cent.	Large Mononuclears, per Cent.	Eosinophils, per Cent.
1	6,000	75	20	5	..
2	16,800	85	12	3	..
3	8,000	83	9	8	..
4	8,000	54	48	8	..
5	6,500	78	19	3	..
6	9,000	78	20	2	..
7	5,200	35	22	7	..
8	7,800	59	14	26	1
9	8,200	70	25	5	..
10	4,300	65	22	12	1
11	4,550	68	28	4	..
12	9,000	80	15	5	..
13	8,600	46	30	21	3
14	8,000	48	23	2	28
Average	7,782				

Of three pneumonia patients with leukopenia, two recovered and one died. Of four with a normal blood count, one died. Five of those with leukocytosis died. The differential counts had nothing characteristic about them. One patient, showing eosinophils, subsequently developed otitis media and mastoiditis.

URINALYSIS

The urine of 225 patients was examined; 150, or 66 per cent., contained albumin, and eighty-three, or 37 per cent., casts. Pus cells and leukocytes also were quite common. These findings are an index of the effects of the toxemia on the kidneys, producing distinct kidney irritation even to the extent of well marked parenchymatous change. It is well to remember, though, that the cases of those sent to the hospital were, as a rule, more severe than many treated in the various sick bays at this station.

NECROPSIES

Unfortunately we were able to secure but two necropsies, both of patients dying from pneumonia.

CASE 1.—Consolidation of a dark red, glazed, "meaty" appearance involved the dependent third of the lungs with a fibrinous exudate of mild degree on the corresponding pleural surface. The air-containing portions of the lungs were edematous.

The kidneys presented acute parenchymatous nephritis.

The other organs were not changed to any important extent. Cultures from the heart's blood, lungs and spleen yielded a Type IV pneumococcus.

CASE 2.—There was a consolidation in the lower lobe of the left lung, with slight involvement of the pleura. On the right side, in addition to almost complete consolidation of the middle and lower lobe, there was a large area of consolidation in the upper lobe.

The cut surfaces of these consolidations were similar, presenting a mosaic of dark red, glazed areas, grayish red granular ones, others more of the character of gray hepatization, and some showing a softened exudate, suggesting beginning resolution. This, in our opinion, indicates that the lesion was essentially a bronchopneumonia that had by extension become lobar in distribution.

TABLE 4.—BLOOD COUNTS IN INFLUENZA COMPLICATED BY PNEUMONIA AND PLEURISY

Case	Number of Leukocytes	Polymorphonuclears, per Cent.	Small Mononuclears, per Cent.	Large Mononuclears, per Cent.	Eosinophils, per Cent.
1	15,400	83	14	3	..
2	17,600	76	18	6	..
3	17,000	85	12	3	..
4	4,800	76	22	2	..
5	12,600	84	16	..	..
6	32,000	76	20	4	..
7	18,000	87	10	3	..
8	9,000	75	22	3	..
9	5,000	76	21	3	..
10	8,000	74	26	6	..
11	18,900	75	16	7	2
12	8,000	69	17	4	..
13	12,800	81	18	1	..
14	19,400	80	15	5	..
15	12,000	82	14	4	..
16	15,800	76	16	8	..
17	15,800	76	21	3	..
18	15,800	76	18	6	..
19	17,200	70	24	6	..
20	13,800	78	19	3	..
21	9,000	65	31	4	..
22	4,900	50	50	..	..
23	16,600	81	16	1	2
24	12,800	84	12	4	..
25	14,200	86	11	3	..
26	24,600	84	13	3	..
27	20,800	85	12	3	..
28	23,400	88	8	4	..
29	33,700	84	14	2	..
30	18,000	84	9	7	..
31	25,000	93	4	3	..
32	19,400	78	15	7	..
33	14,400	84	12	2	..
34	14,600	85	6	9	..
35	15,400	79	16	5	..
Average	15,906				

On the right side there was also a serofibrinous pleuritis, with extensive fibrinous exudation.

The kidneys were the seat of well marked parenchymatous changes, and the spleen was moderately enlarged.

Cultures from the heart's blood, both lungs, right pleura and spleen yielded a Type IV pneumococcus.

In neither necropsy was the influenza bacillus isolated.

Infant Mortality and Welfare.—The infant mortality rate is considered the most sensitive index we possess to social welfare. It reflects at once conditions which improve or interfere with the normal health or life of the community. As conditions which make for normal family and community life are improved, the infant death rate decreases. When these conditions are disturbed, the rate correspondingly increases. The infant mortality rate, therefore, may be taken as the barometer of the social welfare of the community.—Handbook of Child Hygiene, Kansas State Board of Health.

THE RELATION OF BRONCHOPNEUMONIA TO INFLUENZA

A PRELIMINARY REPORT

By THE CAMP LEWIS PNEUMONIA UNIT[*]
CAMP LEWIS, AMERICAN LAKE, WASH.

The spread of the so-called "Spansh influenza" epidemic in the various cities and military camps during recent months has been the concern of the medical profession and of the laity alike. Current medical literature deals largely with the subject. The death rate from influenza and its complications in the Army cantonments alone probably exceeds that of the American Expeditionary Forces from all other causes.

When the epidemic reached Camp Lewis, we had at the base hospital a well organized pneumonia unit. This unit was composed of assistants and ward surgeons on the medical service, a laboratory personnel with a day and night service, and an efficient roentgen-ray service. No case of pneumonia was reported unless the findings of the ward surgeon were confirmed by the chief of the medical service or an assistant. In all cases of pneumonia or suspected pneumonia, a sputum study, white blood and differential count, blood culture and urine examinations were made as a routine. Each patient was roentgenographed, unless the condition was critical on admission. Postmorten examinations were made in practically every fatal case.

Early in the epidemic we were forcibly struck by the atypical signs of the pneumonia with which we were confronted. The usual signs of pneumonia in young adults were conspicuously absent. Frank consolidation with high temperature was the exception rather than the rule. The onset of the disease was atypical. Most of the patients gave the more or less typical and accepted history and symptoms on which a diagnosis of influenza are based. They complained of generalized muscle and joint pains, headache, slight dryness of the throat, pains beneath the sternum, and usually a dry and unproductive cough. Rarely was there a history of a sudden and definite chill. In only the most severe cases was there a history of rusty or bloody sputum. On admission the temperature in a majority of cases varied from 99 to 101 F.; the pulse was normal or only slightly increased; the respirations, except in the most severe cases, rarely exceeded 28 per minute, and the distress was usually slight.

On physical examination, the findings were not marked. Usually there was found a slight diminution in resonance over one or both lung bases posteriorly. The breath sounds were variable. Bronchial breathing and pectoriloquy were rarely present. In some cases the breathing was harsh or bronchovesicular, accompanied by an increase in fremitus. In other cases the breathing was diminished with a decrease in fremitus. On deep inspiration, in either type of case, a shower of fine moist or crepitant râles was almost invariably heard over the area of diminished resonance.

From these early and indistinct signs, the course rapidly changed. Within from forty-eight to seventy-two hours there was either a marked extension of the process with definite although atypical signs of a diffuse bronchopneumonia, or the temperature had dropped to normal and the lungs showed signs of resolution. In the more severe cases the temperature remained elevated with only slight increase in pulse and respiratory rate for several days. The temperature then fell by lysis to normal. In the fatal cases the process extended to several lobes or all lobes of both lungs. In the most extensive cases, bronchial breathing and pectoriloquy were occasionally noted.

Laboratory study showed a consistently low white blood count, being usually under 10,000 cells per cubic millimeter, with only slight changes in the differential count. Sputum examinations revealed very uniformly Type IV pneumococcus with a nonhemolytic streptococcus. The other types of pneumococcus or the hemolytic streptococcus were rarely found, in contrast to the almost constant incidence of the hemolytic type of streptococcus in the cases of pneumonia in the spring of 1918. Influenza bacilli were found in only a few cases early in the epidemic. Blood cultures in 825 cases were positive in twenty-four, or 2.9 per cent.; of these, twenty cases showed pneumococci, one hemolytic streptococcus, and one nonhemolytic streptococcus.

Postmortem examinations revealed a bronchopneumonia of varying degree, but usually extensive and involving one or both lower lobes, sometimes associated with involvement of other lobes in all combinations. The process was characterized by scattered areas of pneumonic consolidation varying in size, the larger areas resulting from the coalescence of smaller ones. Frequently the entire lobe or lobes would show consolidation, giving the appearance of a lobar pneumonia. The latter type early in the epidemic led us to make a diagnosis clinically of lobar pneumonia, but further study showed that we were dealing with a coalescent bronchopneumonia. In every case coming to postmortem examination, the presence of a pneumonic process was clearly demonstrated.

Throughout the study the use of the roentgen ray has been invaluable. It was possible in many cases to show by this method the extension of a relatively small and indefinite area of haziness at the base of one or both lungs to a complete involvement of all lobes of both lungs. In contrast to this, however, it was possible to show cases presenting similar areas which did not progress but slowly resolved after the return of the temperature to normal. With the large number of cases studied it has been possible to show all gradations of the process. Frequently the roentgenographic findings revealed a rather extensive process which showed only slight signs on physical examination until from twenty-four to forty-eight hours later. On the other hand, cases in which the physical signs were fairly well marked occasionally showed only moderate changes in radiability. These discrepancies have been explained by the situation of the pneumonic process in the lung tissue, confirmed by stereoscopic plates and postmortem examinations.

SUMMARY

The recent epidemic at Camp Lewis was an acute respiratory infection and not an epidemic due to *Bacillus influenzae*. The acute respiratory infection was characterized by atypical physical signs and extreme variation in virulence.

From the large number of cases studied clinically, roentgenologically, bacteriologically and at postmortem, it appears amply demonstrated that the process, whether mild or severe, is etiologically and pathologically the same; that there are all gradations from a slight involvement of the bronchioles with adjacent alveolar infiltration to an extensive involvement of entire lobes simulating lobar pneumonia; and that the cases were mild or severe, depending on the resistance of the individual or variations in the virulence of the organism, rather than the accepted idea that pneumonia complicated one case and not another.

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[*] The pneumonia unit was composed of: Medical Service: William J. Kerr, Captain, M. C., chief of the service; *Assistants:* Harvey M. Slater, Captain, M. C.; Hugh K. Berkley, Captain, M. C.; T. Homer Coffen, Captain, M. C.; Thomas G. Clement, Captain, M. C. and ward surgeons. Laboratory Service: Kenneth J. Staniford, Major, M. C.; chief of the laboratory service; Marcus C. Terry, Captain, M. C. Roentgen-Ray Laboratory: F. E. Diemer, Captain, M. C., head of roentgen-ray laboratory and staff.

ANTHRAX AT EMBARKATION HOSPITAL, NEWPORT NEWS, VA.

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and
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In view of the recent occurrence of anthrax in the various Army camps, an account of the cases observed at the Embarkation Hospital, Newport News, Va., should be of interest:

REPORT OF CASES

Case 1.—*History.*—A soldier, admitted to the hospital, May 25, 1918, with the transfer diagnosis of mumps, had had headache, May 23, and then noticed a small papule on the left cheek. While shaving, he cut the papule, which bled freely. His face started to swell the same afternoon. Headache increased, then the throat began to swell, deglutition was painful, he had nausea and vomiting, and he felt very chilly. There was a nodule on the left cheek the size of a quarter, with a dark cherry eschar, with a well defined, elevated margin. The temperature was 102.6, the pulse 104, and respiration 28. Two hours later the temperature was 103.4. Anthrax bacilli were demonstrated in smears.

Operation.—May 25, the nodule was excised under local anesthesia, the base cauterized with pure phenol (carbolic acid), 5 per cent. phenol injected into the subcuticular tissue around the excised area, and a 95 per cent. alcoholic dressing kept continuously applied. The wound was dressed every twenty-four hours. The base was cauterized with pure phenol until the edema subsided, and then with 5 per cent. phenol until pure granulations developed. After twenty days, repeated culture failed to demonstrate bacilli, when, under local anesthesia, skin grafting was performed. The patient returned to duty, July 4, with the wound healed.

Comment.—After the operation, the swelling increased for thirty-six hours, extending to the supraclavicular glands; there were no kidney complications. The temperature became normal, May 29, with no subsequent rise. Medical treatment was given from a symptomatic standpoint. Aside from the smear, no laboratory work was done in this case.

Case 2.—*History.*—A soldier, admitted, June 6, 1918, with the transfer diagnosis of parotitis, had noticed, two days prior, a papule on the right cheek, which he picked. Swelling began and very rapidly extended down the neck. There was a pustule, the size of a green pea, with a deeply indurated margin, rather blurred and studded with vesicles, and a dark cherry center. The induration was out of proportion to the nodule. There were no marked constitutional symptoms. A smear showed anthrax bacilli. The patient stated that he had been wearing a chinstrap which rubbed this papule. The temperature was 100.2, the pulse 90, and respiration 20. June 8, the temperature was 104.4, the pulse 110, and respiration 26.

Operation.—June 6, under local anesthesia, the nodule with an indurated area the size of a half dollar was excised, with the same after-treatment as in the preceding case. The patient's temperature of 104.4, June 8, gradually receded until it became normal, June 11. Skin grafting was performed, July 5. The patient was returned to duty, August 3, with a very small area remaining unhealed.

Comment.—This was a normal case with rather marked swelling and great reaction following operation. The organisms in this case were obtained in both smear and culture.

Case 3.—*History.*—A soldier, admitted, July 15, 1918, with undetermined diagnosis, had noticed a small papule, July 11, which itched. He scratched it several times that night. Next day, he noticed a small lump (induration). He ached all over as if he had the grip. The lesion itself was not very painful. The swelling increased. July 13, he reported on sick call. He remained in quarters, July 14, and was sent to the hospital. Smear on admission was positive. He says he went on a hike, July 11, and slept that night on some of his equipment, which put a leather strap against his cheek. July 11, he used a new shaving brush.

Findings.—On the right cheek, at the margin of the lower jaw, there was a black eschar about one-half inch in diameter, with an induration about 1½ inches across. The eschar was surrounded by a yellowish border and numerous vesicles and edema involving the neck, chiefly on the right side. The temperature was 102.2, the pulse 120, and respiration 24. July 16, the temperature was 98, the pulse 70, and respiration 20. There was fever for only twelve hours after admission.

Operation.—July 15, excision of the nodules the size of a silver dollar and the usual operative technic were carried out. Edema disappeared after five days. July 20, phenol was discontinued and physiologic sodium chlorid solution used. Edema reappeared; under phenol it again disappeared. August 18, phenol was discontinued and again the edema appeared, to disappear after the use of phenol. September 19, 40 c.c. of antianthrax serum were given subcutaneously with local swelling; September 23, 40 c.c. of antianthrax serum were given, and irritable heart developed. The patient complained severely, but no pathologic condition was produced. The serum was discontinued; local applications were continued; healthy granulations rapidly formed. At present the wound is practically healed.

Comment.—There was a very slight reaction following the operation. This case was a very stubborn one. On administration of anthrax serum, there was a local reaction about the site of the wound. Organisms were obtained from smear, culture, and the following tissues: from inoculated guinea-pig, blood stream, liver, heart, spleen, and site of inoculation. The guinea-pig died within thirty-six hours after inoculation.

Case 4.—A soldier, admitted, Sept. 21, 1918, with the transfer diagnosis undetermined, had noticed a papule, the day before, on the left side of the face; next day there was edema on one side of the face, but very little pain. He reported on sick call and was sent to the hospital. He arrived at this camp, September 19. He slept on a leather seat and had been using a new shaving outfit, but destroyed it before coming to the hospital.

Findings.—Over the angle of the left side of the lower jaw was a black eschar about 2 cm. in diameter, surrounded by a ring of small vesicles of a dirty dark yellow; there was induration about 1 inch across, and immense edema of the left side of the face, neck and the upper third of the chest. On admission, the temperature was 102, the pulse 112, and respiration 20. After operation the temperature rose to 103.2, the pulse 120, and respiration 18.

Operation.—September 21, excision of the nodule the size of a silver dollar, with the usual technic, was carried out. In addition, 40 c.c. of serum were given. September 22, edema increased, closing the left eye and involving the upper half of the chest; there was slight delirium. September 23, the edema was unchecked. The patient had difficulty in swallowing. Forty c.c. of serum were given intravenously, and repeated four hours later; there was no reaction from the serum. September 25, the edema was subsiding. September 28, the edema had about disappeared. The same treatment was continued with subsidence of all symptoms. The wound at present is rapidly granulating.

Comment.—This was the most severe infection, and the only one producing any delirium. In this case infection was not combated until injections of anthrax serum were used, after which there was a general subsidence of symptoms.

SUMMARY

1. The source of infection was not definitely determined. In two cases, cultures of toilet articles, especially shaving brushes, were made, with no growth. Unfortunately the others were destroyed before we could get them. All the patients wore chinstraps of leather. One had slept, using his haversack as a pillow. Another used a leather seat on the train as a bed. None had been around animals of any kind.

2. The operations were performed under local anesthesia, without any attempt to control hemorrhage, as loss of blood from the site of infection was advisable. Cauterization and injection of 5 per cent. phenol into the cellular tissue, followed by continuous alcohol dressings, are indispensable. Skin grafting decreased the period of convalescence by weeks.

3. Antianthrax serum was of benefit in one case. It was used in only two of our cases, being discontinued in one after rather severe reaction.

4. Guinea-pigs died within thirty-six hours after inoculation.

ANTHRAX AT CAMP DODGE, IOWA

REPORT OF THREE CASES, WITH BACTERIOLOGIC AND BLOOD STUDIES [*]

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The literature of anthrax reveals surprisingly meager attention paid to blood culture and cell count studies in this infection. The results of such studies in the cases here recorded may therefore prove of interest. The three soldiers of this camp affected with anthrax were admitted to the base hospital between Sept. 6 and Sept. 19, 1918. Of these, one died and two recovered. Two days previous to the earlier date a soldier had died immediately on entering the receiving ward, in whom the necropsy showed extensive intestinal anthrax.

REPORT OF CASES

Case 1.—Private A. C., white, aged 30, admitted, Sept. 12, 1918, had entered the service one week before. Before entering the service, he had been a car repairer. September 6, he noticed a pimple on the left cheek which was slightly painful. Three days later the pain was considerable and the lesion was discharging bloody serum. A few days before the appearance of the furuncle he had used a new shaving brush. Examination revealed a rather superficial induration the size of a dollar situated on the left cheek, 5 cm. from the angle of the mouth, with a dark red central eschar the size of a finger tip, discharging a serosanguineous fluid. The glands of the neck were not enlarged. The temperature was 98, the pulse 78, and respiration 22. Two cm. of 5 per cent. phenol solution were injected around the areola and 50 c.c. of pneumococcus serum (Rockefeller) given intravenously. Forty-eight c.c. of the serum were similarly given on the following day. This serum was administered in this and the other two cases by the attending ward surgeons because it was the only horse serum available, antianthrax serum not being immediately obtainable. Two days later the swelling began to subside and at the end of two weeks had disappeared. A mild conjunctival and nasal catarrh appeared eight days after the administration of the serum, which lasted a few days, followed by a general anaphylactic urticaria which persisted for a week. The temperature never rose above 99.6. Smears and cultures from the lesion were positive on the first two days and negative on the five succeeding examinations (Table 3). Daily blood counts revealed no leukocytosis (Table 1). The anthrax bacillus was demonstrated in culture of the shaving brush bristles, but this is not of value, as the patient had used the brush after the development of the lesion. Daily blood cultures were negative (Table 1).

Case 2.—Private P. B., white, aged 21, admitted, Sept. 11, 1918, had been a farmer before entering the service, but had not handled animals with discharging sores. He had used his present shaving brush two months. September 8, he experienced frontal headache and on the following day noticed a pimple on the left side of the neck about midway between the angle of the jaw and the chin. The swelling about the lesion began to increase at once, and there was pain which radiated down the left side of the chest and was aggravated by coughing. On admission the patient stated that he had vomited earlier in the day, and complained of severe headache and left pectoral pain aggravated by coughing and on deep breathing. The temperature was 101, the pulse 112, and respiration 26. On the left side of the neck immediately below the middle of the border of the inferior maxilla was an indurated area about the size of a quarter in the center of which an eschar with irregular edges and about the size of a dime was seen. Several vesicles surrounded the eschar and a serosanguineous fluid exuded from under it. An inflammatory and edematous areola surrounded the lesion and extended to the zygoma above and the clavicle below. This spread within a few hours to the hairline above and the level of the nipple below. There was also some extension to the right side of the neck. Except for a few moist râles over the left base, the lungs were negative. A smear from the discharge on admission showed the presence of the anthrax bacillus, and a pure growth was obtained on culture (Table 3). Three hours after admission, serum treatment was begun. Pneumococcus serum was given as follows:

September 11: 2:30 p. m., 20 c.c. subcutaneously in the pectoral region; 7 p. m., 30 c.c. subcutaneously in the pectoral region.

September 12: 11:30 a. m., 50 c.c. subcutaneously in the gluteal region; 6:30 p. m., 50 c.c. subcutaneously in the gluteal region.

September 13: 10:30 a. m., 85 c.c. intravenously.

On the evening of September 11, 0.5 c.c. of a 5 per cent. phenol solution was injected around the margin of the indurated area. The edema and inflammation began to subside, September 12, and had disappeared on the 14th. A few days later the induration and discharge were also gone, leaving a dry, black eschar, which had entirely healed, September 26. Slight cervical glandular swelling persisted until the patient's discharge, October 6. Blood cultures were positive for *B. anthracis*, September 11, 12 and 13, and negative thereafter. This, together with the daily white cell count, is shown in Table 1.

Case 3.—Recruit G. N., white, aged 29, admitted, Sept. 19, 1918, had entered the service two weeks before. He had been a farmer. Some of the cattle he had handled had had "pinkeye," but were not otherwise affected. September 16, while on the drill field, he noticed a papule on the right side of the neck near the angle of the jaw. On the following day he pricked the pimple, drawing blood and pus. On the next day he cut the sore while shaving with a razor which he had purchased at the regimental exchange ten days before. Soon after this the tissues around the lesion began to swell. On admission the patient complained of headache, and alternating hot and cold sensations. The temperature was 98, the pulse 78, and respiration 20. An indurated, slightly inflamed area about 7 cm. in diameter, with a central ulceration containing seropurulent fluid and covered with dried coagulum, was situated at the angle of the lower jaw on the right side. The cervical glands were enlarged. Moist râles were heard at both pulmonary apexes, and there was slight tenderness in the lower abdomen. A smear and culture made from the lesion on admission showed the presence of the anthrax bacillus. Four hours after admission the administration of serum was begun and given as follows:

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[*] From the Laboratory of the Base Hospital.

September 19: 3 p. m., 50 c.c. of pneumococcus serum intravenously.

September 20: 9 a. m., 50 c.c. of pneumococcus serum intravenously; 10 p. m., 75 c.c. of pneumococcus serum intravenously.

September 21: 3 p. m., 35 c.c. of antianthrax serum intravenously.

September 19, at 5 p. m., 1 c.c. of 5 per cent. phenol solution was injected around the margin of the indurated area. September 21, the swelling extended to just above the root of the neck and about 2 inches to the left of the midline, causing some degree of dyspnea. The pulse was of poor quality. There was considerable epistaxis. The patient was restless throughout the following night. September 22, the epistaxis was repeated, and there was nausea, vomiting and abdominal pain. The pulse, however, was improved. The lungs were negative. The induration was somewhat smaller and the patient seemed on the whole better. Cultures were made that day of the vomitus and feces for the anthrax bacillus, the former proving negative and the latter positive. Bismuth subnitrate was given to control the vomiting. On the night of September 22, the patient was worse and was stimulated with strychnin and digitalis. He became extremely restless and somewhat delirious, and died at 6 a. m. Necropsy revealed involvement of Peyer's patches and the solitary nodules and considerable peritoneal exudate (about 1,500 c.c.). *B. anthracis* was recovered from the peritoneal exudate and obtained in pure culture from the heart's blood. The results of the blood studies in this case are given in Table 1.

TABLE 1.—BLOOD STUDIES

Date	White Blood Cells	Neutrophils	Small Lymphocytes	Large Lymphocytes	Basophils	Eosinophils	Blood Culture
Case 1:							
9/13/18	8,000	86	10	..	..	4	Negative
9/14/18	6,400	73	17	1	..	9	Negative
9/16/18	6,400	68	23	1	..	8	Negative
9/17/18	6,400	75	20	1	..	4	Negative
9/18/18	6,200	72	18	2	..	8	Negative
9/19/18	6,800	66	22	..	2	10	Negative
9/20/18	7,200	70	18	..	..	12	Negative
9/21/18	6,600	66	20	2	..	12	Negative
9/22/18	8,000	64	22	..	2	12	Negative
9/23/18	9,000	70	18	4	..	8	Negative
9/24/18	8,000	70	20	..	2	8	Negative
9/25/18	8,000	70	18	2	..	10	Negative
9/26/18	8,000	70	22	..	..	8	Negative
Case 2:							
9/11/18	9,000	..	..	..	..	..	Positive
9/12/18	15,800	83	14	2	1	..	Positive
9/13/18	10,000	76	16	6	..	2	Positive
9/14/18	7,000	70	22	4	..	4	Negative
9/16/18	8,000	75	19	2	1	3	Negative
9/17/18	8,200	73	22	1	..	4	Negative
9/18/18	8,600	74	24	..	..	2	Negative
9/19/18	8,400	66	24	5	..	5	Negative
9/20/18	8,400	74	22	..	..	4	Negative
9/21/18	8,000	76	.22	..	..	2	Negative
9/22/18	8,000	74	23	..	..	3	Negative
9/23/18	8,000	66	24	4	..	6	Negative
9/24/18	7,600	76	18	..	1	5	Negative
9/25/18	7,400	74	22	..	..	4	Negative
9/26/18	7,800	70	22	3	..	5	Negative
Case 3:							
9/19/18	8,400	78	18	2	1	1	Positive
9/20/18	9,800	80	16	1	1	2	Positive
9/21/18	12,400	87	11	2	..	..	Positive
9/22/18 Died.	16,000	84	16	..	..	..	Positive

Table 1 gives the results of the blood cultures, white blood count and differential cell count in all three cases. These were made daily until death in Case 3 and to recovery in Case 1 (except the third day). In Case 2, differential cell counts were made every day to recovery except on the first and fifth days of the disease, and blood cultures were taken daily to recovery except on the fifth day of the disease.

In making the blood cultures, about 12 c.c. of blood were placed in 150 c.c. of 0.5 per cent. glucose bouillon and incubated at 37.5 C. for twenty-four hours. A human blood agar plate and a tube containing 10 c.c. of 0.5 per cent. glucose bouillon were then inoculated from this culture and incubated at 37.5 C. In Case 3, these were positive at the end of twenty-four hours. In Case 2 the blood culture taken on the first day was negative at the end of the twenty-four hours' incubation, but positive after forty-eight hours. On the two subsequent days the blood cultures in this case were positive after twenty-four hours' incubation. In Case 1 no growth could be obtained from the blood culture at any time.

A study of Table 1 emphasizes the following interesting points:

1. The leukocytosis runs concurrently with the blood culture findings. Thus, Case 1, with blood cultures negative throughout the course of the disease, shows no leukocytosis at any time. Case 2 shows an increased white cell count on the first three days when the blood cultures were positive, falling to, and remaining at, normal as the blood cultures remained negative. In Case 3 a persistently positive blood culture runs parallel with a constantly rising leukocytosis, which is highest just before death.

2. The eosinophil count is in inverse proportion to the severity of the infection. Thus, in Case 1, the mildest, the average daily eosinophil count for the thirteen days is 8.5. In Case 2 the average for the first three days, which represent the more active stage of the disease, is 1; the average for the subsequent eleven days, representing the declining stage, is 4. In Case 3, with a high grade infection throughout, the average eosinophil count is 1. This is shown more graphically in Table 2, in which the daily average for the three cases is computed from the figures in Table 1.

TABLE 2.—AVERAGE DAILY COUNT

	White Blood Cells	Neutrophils	Eosinophils
Case 3	11,650	82	1
Case 2:			
During first three days	11,600	79	2
During subsequent days	7,900	72	4
Case 1	7,300	70	8.5

Case 1 was examined for intestinal parasites as a possible cause for the eosinophilia and found negative.

It may be of interest to note that the leukocytosis bears a direct relation to the clinical course. Thus, in Case 1 the cell count was always normal. In Case 2 the count becomes normal as the fever falls and the swelling subsides, while in Case 3 the leukocytosis persists throughout, being highest on the day preceding death. At no time was phagocytosis observed.

Table 3 gives the result of the smears and cultures taken from the lesions. *B. anthracis* was obtained in pure culture on the first day in all three cases. After the first day, Case 1 also showed short chain nonhemolytic streptococci and staphylococci; Case 2 showed pneumococci, and Case 3 *Micrococcus catarrhalis* and staphylococci. The smears from the lesion showed gram-positive bacilli with square ends about 6 by 1.5 microns, occurring in pairs. The smears from the cultures showed nonmotile bacilli which were gram-positive, some having rounded ends and others square, containing spores in the center and occurring in long chains. The cultures were made on human blood agar plates, and under low power the colonies appeared as dense, irregularly rounded masses from which spread parallel, wavy strands, which under high power were seen to consist of chains of bacilli, each bacillus containing an oval, glistening body in the center.

Culture of the urine was negative in all three cases. The feces were negative in Cases 1 and 2 and positive on the day preceding death in Case 3.

Cultures were made of the bristles of the shaving brushes used by all three patients, and only that of Case 1 was found positive. This, however, as stated before, was of little significance, as the brush had been used after the appearance of the lesion.

ANIMAL INOCULATION

An emulsion made from the growth obtained by blood culture in Case 2 was injected into a guinea-pig. The animal died in thirty-two hours, and *B. anthracis* was obtained in pure culture from the heart's blood and spleen, and also recovered from the peritoneal exudate. Cultures were also made from the lesion in each case and injected into guinea-pigs. The animal in Case 1 died in thirty-two hours, in Case 2 in twenty hours, and in Case 3, forty-six hours. In each animal, pure growth of *B. anthracis* was obtained from the heart's blood and spleen and, in combination with various pyogenic organisms, from the peritoneal exudate.

TABLE 3.—SMEARS AND CULTURES FROM LESIONS

Date	Smear	Culture
Case 1:		
9/10/18	B. anthracis	B. anthracis in pure culture
9/13/18	B. anthracis; nonhemolytic streptococci	B. anthracis; nonhemolytic short chain streptococci
9/14/18	Nonhemolytic short chain streptococci and staphylococci	Nonhemolytic short chain streptococci and staphylococci
9/14/18	Nonhemolytic short chain streptococci and staphylococci	Nonhemolytic short chain streptococci and staphylococci
9/16/18	Nonhemolytic short chain streptococci and staphylococci	Nonhemolytic short chain streptococci and staphylococci
9/21/18	Nonhemolytic short chain streptococci and staphylococci	Nonhemolytic short chain streptococci and staphylococci
9/22/18	Nonhemolytic short chain streptococci and staphylococci	Nonhemolytic short chain streptococci and staphylococci
Case 2:		
9/11/18	B. anthracis	B. anthracis
9/12/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/12/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/13/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/14/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/16/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/18/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/21/18	B. anthracis; pneumococci	B. anthracis; pneumococci
9/22/18	B. anthracis; pneumococci	B. anthracis; pneumococci
Case 3:		
9/19/18	B. anthracis	B. anthracis
9/20/18	B. anthracis, Micrococcus catarrhalis and staphylococci	B. anthracis, Micrococcus catarrhalis and staphylococci
9/21/18	B. anthracis, Micrococcus catarrhalis and staphylococci	B. anthracis, Micrococcus catarrhalis and staphylococci
9/22/18	B. anthracis, Micrococcus catarrhalis and staphylococci	B. anthracis, Micrococcus catarrhalis and staphylococci

In view of the distinctive appearance of the anthrax colonies, which makes them easily obtainable in pure culture, and of the high susceptibility of the guinea-pig, toward this organism, which can be recovered from the guinea-pig in pure culture, the confirmation of the diagnosis of anthrax should be easy. Ludy and Rice[1] report a case of anthrax in which they experienced great difficulty in confirming the diagnosis by animal inoculation.

It will be observed that in our three cases, anthracemia was demonstrated in two. Graham and Detweiler[2] report the recovery of a patient in whose blood they found the anthrax bacillus. The rarity in literature of demonstrated anthracemia may be due to a lack of bacteriologic investigation.

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[1] Ludy, J. B., and Rice, E. C.: Anthrax at Camp Hancock, Ga., J. A. M. A. **71**: 1133 (Oct. 5) 1918.

[2] Graham, R. R., and Detweiler, H. K.: Anthrax, J. A. M. A. **70**: 671 (March 9) 1918.

HEMOLYTIC STREPTOCOCCI

A SEROLOGIC STUDY OF STRAINS ISOLATED DURING A RECENT EPIDEMIC AT CAMP WADSWORTH, S. C.: PRELIMINARY REPORT

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AND

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First Lieutenant, M. C., U. S. Army

CAMP WADSWORTH, SPARTANBURG, S. C.

The experiments embodied in this report deal with cultural and serologic studies of hemolytic streptococci isolated in the recent epidemic of respiratory diseases at Camp Wadsworth, S. C. These cultures were obtained from (1) healthy carriers, (2) patients with acute bronchitis and (3) patients with bronchopneumonia, both from the sputum during the course of the disease and from the lungs and heart's blood at necropsy.

A study of the healthy carriers of hemolytic streptococci has been interesting. From June, 1918, to Oct. 1, 1918, when the number of cases of respiratory infections reached epidemic proportions, 21,000 throat cultures were taken from the various units in camp. Chart 1 shows the percentage of healthy carriers found. It will be seen that the curve shows a rather steady rise till the latter part of September, when it rose above 20 to 25 per cent., following which the number of cases of respiratory diseases assumed epidemic proportions. Following this outbreak the number of carriers suddenly dropped to the level obtaining during the summer months.

The hemolytic streptococci are known to be secondary invaders of no mean importance in measles[1] and other acute infections, and it would seem from a study of the recent epidemic of influenza that its importance in causing pneumonia is not to be disregarded.

Previous studies of hemolytic streptococci have resulted in a rather chaotic condition of our knowledge of the different strains of this organism. Park and Williams[2] have classified the hemolytic streptococci in different groups according to their sugar reactions.

It will be shown later in this report that the cultural characteristics have but little bearing on their serologic grouping.

Kinsella and Swift,[3] from a study of a limited number of strains, came to the conclusion that, so far as complement fixation was concerned, all strains were identical.

The purpose of the present study is to show that the hemolytic streptococci can be grouped, according to their agglutination reactions, into certain more or less definite types, and that furthermore, a protective serum for each group is possible of production.

Heretofore little attention has been paid to the different types of streptococci in the production of antistreptococcic serum. It has been the custom to use as many strains of streptococci as possible, with the production of a polyvalent serum. This serum, however, has not been potent, since it has not coincided with the strains causing the infection.

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[1] MacCallum, W. G.: Pathology of the Epidemic Streptococcal Bronchopneumonia in the Army Camps, J. A. M. A. **71**: 704 (Aug. 31) 1918. Cumming, J. G.; Spruit, C. B., and Lynch, Charles: The Pneumonias: Streptococcus and Pneumococcus Groups, J. A. M. A. **70**: 1066 (April 13) 1918.

[2] Park, W. H., and Williams, Anna W.: Pathogenic Micro-Organisms, Ed. 6, Philadelphia, Lea & Febiger, 1917, p. 254.

[3] Kinsella, R. A., and Swift, H. F.: J. Exper. Med. **28**: 169 (Aug.) 1918.

In this study the cultural and serologic characteristics of 110 cultures of hemolytic streptococci from different sources have been studied. The sources from which these strains have been obtained are shown in Table 1. In addition thirty-six cultures from new arrivals in camp were studied to ascertain whether we were dealing with only a limited number of strains in our study; as will be shown later, these strains corresponded both culturally and serologically with those isolated from camp inhabitants.

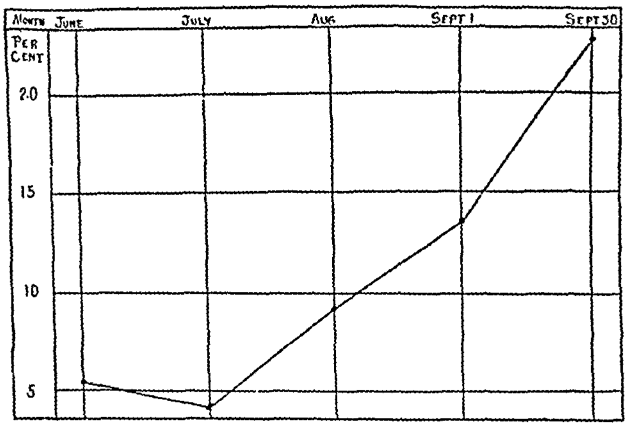

Chart 1.—Percentage of healthy carriers of hemolytic streptococci, Camp Wadsworth, S. C., from June to September, 1918.

TABLE 1.—SOURCES OF STRAINS

	Number Examined	Number Strains Isolated
Healthy carriers	4,143	48
Acute bronchitis	3,817	33
Bronchopneumonia (sputum)	113	11
Bronchopneumonia (necropsies)	45	18
Total		110

CULTURAL CHARACTERISTICS

Many of the strains differ in the appearance of the colonies on blood agar. The size of the colonies and the degree of hemolysis varies with different strains. All strains grow poorly in plain broth, but grow fairly well in glucose broth to which 10 per cent. blood has been added. The character of the growth is usually a uniform clouding with a slight tendency in some strains to flocculate and sediment.

The sugar reactions are indicated in Table 2. It will be seen that the majority of the strains are identical as far as their ability to split sugars is concerned.

TABLE 2.—SUGAR REACTIONS OF HEMOLYTIC STREPTOCOCCI

	Lactose		Mannite		Salicin		Inulin		Total
	+	—	+	—	+	—	+	—	
No. of strains	110	0	0	110	84	26	0	110	110

SEROLOGIC EXPERIMENTS

While the grouping of these strains of hemolytic streptococci by means of their agglutination reactions is not yet complete, the indications are that there are at least four groups that are fairly distinct. Chart 2 shows graphically the relation between the different groups. It will be seen that 48 per cent. of these 110 strains are agglutinated in high dilution (1:5,000) by the serum used, and that there are three other groups, depending on their degree of agglutinability with this serum.

It has been found fairly easy to produce in rabbits a high titer serum. Live avirulent cultures were used for immunization. Nine intravenous injections were found to be sufficient to produce an immune serum which agglutinated homologous strains in dilutions of 1:10,000.

Glucose broth with 1 per cent. blood was used for growing the cultures for agglutination tests. In this medium an abundant growth is obtained in from sixteen to twenty-four hours. Very few of the cultures failed to grow with a uniform turbidity suitable for agglutination purposes.

BACTERICIDAL TESTS

Having found that this serum was high in agglutinins, it was interesting to determine its bactericidal properties. It was found that the bacteriolysins were specific for each group in the same way as the agglutinins are specific. Strains that were identical by agglutination tests were killed, while the immune serum failed to have bactericidal properties outside of its own group. Table 3 gives the results of bactericidal tests. In all of the experiments, 0.5 c.c. of a 1:10 dilution of immune serum and 0.5 c.c. of a 1:10 dilution of fresh guinea-pig complement were mixed with 0.5 c.c. of a twelve hour blood glucose broth culture of the streptococcus strain. Control tubes contained 0.5 c.c. culture, 0.5 c.c. complement and 0.5 c.c. salt solution. The tubes were then incubated four hours. A loopful from each tube was then plated and the number of colonies counted after twenty-four hours' incubation.

TABLE 3.—BACTERICIDAL EXPERIMENTS

No. of Culture	No. of Colonies: Serum plus Complement	No. of Colonies: Salt Solution plus Complement	Agglutination
159	0	800	1:5,000
161	0	200	1:5,000
170	0	200	1:5,000
164	0	200	1:5,000
163	0	600	1:5,000
169	50	1,000	1:5,000
186	10	200	1:5,000
172	100	2,000	1:5,000
168	24	28	1:40
187	500	500	1:20
184	500	500	1:60
188	200	200	1:20
181	200	200	1:40
178	200	100	1:20

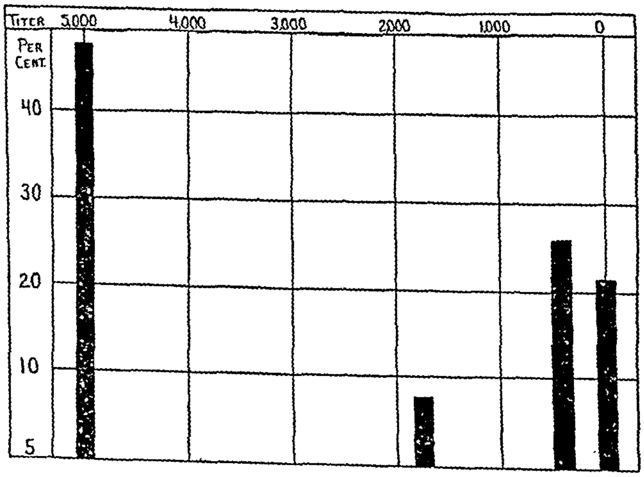

Chart 2.—Agglutination of hemolytic streptococci—110 strains.

These experiments show that the serum is potent only for the homologous strains, and has no more effect than normal serum against strains of other groups.

PROTECTION EXPERIMENTS

The foregoing experiments give evidence of the immune properties of the serum in vitro. The question next arose as to whether the serum was of value in protecting animals against infection with hemolytic streptococci. Mice were used in these experiments. Strains 159, 192 and 197, which had been found to fall within the group which was agglutinated in high dilution, were used. These strains were passed through mice until their virulence was such that 0.5 c.c. of a four hour blood broth culture killed within twenty-four hours. The protocols give the results of these protective experiments. It is necessary to use a sufficient amount of serum to neutralize the bacteria, which may account for its failure to protect Mice 2 and 4. Furthermore, Culture 159 was a highly virulent strain; 0.1 c.c. of a four hour blood glucose broth culture often killed a mouse in twelve hours.

PROTOCOLS

Mouse 1.—Control. At 2 p. m., 0.25 c.c. of a four hour blood glucose broth culture of Strain 159. Inactive and sick at 6 p. m. Died during the night in less than eighteen hours.

Mouse 2.—At 2 p. m., 0.25 c.c. of a four hour blood glucose broth culture of Strain 159 and 0.25 c.c. serum. Normal at 8 p. m. Dead at 8 a. m.

Mouse 3.—Control. At 8 a. m., 0.1 c.c. of a six hour blood glucose broth culture of Strain 159. Sick at 12 m. Dead at 9 p. m.

Mouse 4.—At 8 a. m., 0.1 c.c. of a six hour blood glucose broth culture of Strain 159 and 0.5 c.c. serum. Normal at 4 p. m. Dead in twenty-four hours.

Mouse 5.—Control. At 2 p. m., 0.5 c.c. of Culture 197. Dead in thirty-six hours. Peritoneal exudate showed many streptococci, very few leukocytes.

Mouse 6.—At 2 p. m., 0.5 c.c. of Culture 197 and 0.5 c.c. serum. Normal in thirty-six hours. Dead in seventy-two hours. Peritoneal exudate showed active phagocytosis of streptococci.

Mouse 7.—At 2 p. m., 1.0 c.c. serum. At 3 p. m., 0.5 c.c. Culture 197. Normal seventy-two hours later.

Mouse 8.—Control. At 9 p. m., 0.5 c.c. Culture 192. Dead fourteen hours later.

Mouse 9.—At 9 p. m., 0.5 c.c. Culture 192 and 0.5 c.c. serum. Normal seventy-two hours later.

Mouse 10.—Control. At 3 p. m., 0.5 c.c. Culture 197. Dead sixteen hours later.

Mouse 11.—At 3 p. m., 0.5 c.c. Culture 197 and 0.5 c.c. serum. Normal twenty-four hours later.

Mouse 12.—At 3 p. m., 1 c.c. serum. At 4 p. m., 0.5 c.c. Culture 197. Normal twenty-four hours later

From these experiments it seems that an antistreptococcic serum may be produced in rabbits quite easily. Furthermore, this serum is high in agglutinins, bacteriolysins and other protective properties, provided the serologic differences between strains is observed.

SUMMARY

1. Hemolytic streptococci can be grouped into a few rather definite types.

2. These groups are obtained by the serologic reactions of the different strains, since their cultural characteristics bear no relation to their immunologic grouping.

3. The serums of rabbits immunized with a strain of hemolytic streptococcus protect mice against infection with a homologous strain, but not against strains which are serologically different.

4. Certain "master strains" can be isolated by their serologic reactions, and it seems possible that these strains may be used in the production of a therapeutic serum for use in infection with hemolytic streptococci.

Clinical Notes, Suggestions, and New Instruments

SELECTIVE ELIMINATION OF HAY BACILLUS FROM CULTURES OF OBLIGATIVE ANAEROBES

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Associate Professor of Bacteriology, University of California Medical School

Repeated plating and streaking out on agar plates are universally acknowledged to be fairly reliable procedures for the isolation of aerobic bacteria irrespective of the possible concurrence of obligative anaerobes, for the latter, if present, are completely eliminated by the conditions of aerobic culture. But the same procedures applied under anaerobic conditions for the isolation of obligative anaerobes from cultures mixed with aerobes involve much uncertainty owing to the fact that many aerobes are also facultative anaerobes. It is therefore necessary to eliminate all aerobes from the culture before attempting the purification of obligative anaerobes by any method of surface colony isolation. It is an easy matter to eliminate nonsporulating contaminations by heating cultures containing sporulating anaerobes to a temperature sufficient to destroy vegetative forms alone; but selective heating is a total failure for the elimination of hay bacilli, since most of these organisms are less susceptible to heat than the spores of anaerobes. In view of the relative infrequency with which anaerobes are encountered naturally free from aerobes, and the possibility of aerobic contamination of pure cultures of anaerobes in the laboratory, the method of eliminating aerobic spores here described may be of interest.

The method consists in repeated transfer with incubation of cultures in glucose broth with 1:100,000 or less of gentian violet. The broth is contained in our constricted tube with marble seal;[1] this, while most convenient, is not considered indispensable in the method.

The tubes of dye medium are heated in a cup of boiling water for a few moments, to drive out dissolved oxygen, and are cooled just previous to inoculation. Growth of anaerobes is likely to be delayed and restricted in the presence of gentian violet as compared with nondye medium. Transfer should be made by loop or pipet, as soon as definite turbidity appears, to an aerobic agar slant, gentian violet glucose broth (boiled and cooled), and deep sterile brain (boiled and cooled). The first is a test for the presence of aerobes, the second provides for continuation of the process if so far unsuccessful, and the third secures a viable culture in the case of successful elimination of aerobic spores. Usually not more than three transfers in gentian violet glucose broth are necessary to eliminate hay bacilli from the culture. Confirmation of freedom from aerobic organisms should be made also in the case of the brain culture by attempted culture on an aerobic agar slant. Similar results may be secured with crystal violet.

Cultures so freed from aerobic forms may yet comprise two or more species of anaerobes so that purity of anaerobic cultures cannot be postulated, as is so often done, on failure to secure aerobic growth therefrom.

It may seem paradoxical that we should advocate the use of these dyes in this manner after having only recently shown the value of gentian violet in the elimination of spurious presumptive tests for B. coli in water[2] and milk[3] due to anaerobes. The procedure is based, however, on the fact that while most anaerobic spore-bearing bacilli are gram-positive and follow Churchman's[4] rule in being inhibited by

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1. Hall, I. C.: A New Aerobic-Anaerobic Culture Tube, Univ. of Calif. Pub. in *Pathology* **2**: 147, 1915.
2. Hall and Ellefson: The Elimination of Spurious Presumptive Tests for B. Coli in Water by the Use of Gentian Violet, J. Bacteriol. **3**: 329, 1918.
3. Hall and Ellefson: A Brief Note on the Use of Gentian Violet in Presumptive Tests for B. Coli in Milk with Reference to Sporulating Anaerobes, J. Bacteriol. **3**: 355, 1918.
4. Churchman: The Selective Bactericidal Action of Gentian Violet, J. Exper. Med. **16**: 221, 1912.

triamino-triphenyl-methane dyes, they are apparently considerably less susceptible to the action of such dyes than aerobic sporulating bacilli. The same reagent can therefore be made to operate in a different sense with respect to the selective cultivation of anaerobic bacilli, according to the concentration of the dye used.

The principle has been used many times with various mixtures of anaerobes and hay bacilli without, as yet, a single failure. Even *B. putrificus*, which of all anaerobic bacteria cultivated by us is slowest growing and most delicate, has been freed from accidental hay bacillus contamination in two transfers by this method.

Our recent work with gentian violet and crystal violet has been done with a stock of Grübler's dyes secured before 1914. I hope that whatever is significant in this work can soon be repeated and corroborated by means of American made dyes so that when prewar stocks are exhausted there will be no temptation to renew our patronage of German dyestuffs.

A NEW METHOD FOR FIXATION OF PARAFFIN SECTIONS

James Hebert Mitchell, M.D., Chicago

A new method for the fixation of paraffin sections to slides, doing away with the troublesome albumin fixative, has been devised by Land[1] which depends on the well known principle that most colloidal substances when treated with a solution of a salt of chromium, exposed to light and dried, become insoluble in water. In his paper Land described his technic as follows:

> A 1 per cent. solution of acacia that has been made slightly yellow by the addition of a few drops of 0.2 per cent. potassium bichromate is allowed to flow over a thoroughly clean slide. The paraffin ribbon is then placed on this slide and exposed to light until dry.

In working with this method I found that the paraffin sections were invariably fixed to the slide after a few hours' exposure to light. The fixative used in this manner, however, had the disadvantage of taking up too much stain, particularly with polychrome methylene blue, which is used frequently in dermatologic work. Later I adopted the practice of moistening a cotton swab with the acacia and bichromate solutions, pressing out as much of the solution as possible from the swab, and then rubbing it very lightly over the slide so that the mixture dried immediately and could scarcely be detected with the eye.

I have found that through this use of a mere trace of the fixative, the sections adhere equally well as when the slides are flooded; moreover, there is no taking up of stain by the fixative.

25 East Washington Street.

A Unique Eye Case.—This case, though suggesting that foreign bodies may be a cause of dacryocystitis, is of interest chiefly because of its rarity. The patient complained of soreness and irritation in his right eye awakening him early in the morning. His wife clipped off what she assumed to be an inverted eyelash, scratching the eyeball. As he was not relieved he came to the dispensary on the way to his office. Several medical officers who examined him observed hyperemia of the ocular conjunctiva limited to the sector near the inner canthus, but did not discover the cause. The patient received an eye wash and was instructed to return if the symptoms did *not subside*. Several hours later when he came back, a black speck was discovered in the orifice of the inferior canaliculus, which when magnified by a lens, appeared to be the stump of a misplaced or displaced eyelash. With the aid of the magnifying glass it was grasped with forceps and drawn out of the canaliculus without any resistance. It was a fragment of an eyelash, three-eighths inch long. Relief was immediate.—G. W. Haigh, M.D., Lieutenant, M. C., U. S. N. R. F., Navy Yard, Boston.

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[1] Land, W. J. C.: Botan. Gaz., May, 1915.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

DIGITAN.—First introduced as digipuratum.—A digitalis preparation said to contain digitoxin and digitalin in the form of tannates. It is standardized biologically by the method of Gottlieb. It is claimed that in digitan 85 per cent. of the inactive substances found in the ordinary extract have been removed and that it is free from digitoxin.

Actions and Uses.—The same as those of digitalis.

Dosage.—The same as that of digitalis.

Manufactured by Merck & Co., New York, under U. S. patent No. *943,578* (Dec. 14, 1909; expires 1926) by license of the U. S. Federal Trade Commission.

Digitan Tablets, 1½ grains.—Each tablet contains digitan 0.1 Gm. (1½ grains).

Digitan is obtained by removing objectionable constituents from an alcoholic extract of digitalis, neutralized with alkaline hydroxides, by the addition of ether, petroleum benzene, or other suitable precipitant, and reducing the purified liquid to a powder, by evaporating with milk-sugar.

Digitan is a greenish-yellow, odorless powder of bitter taste. The active constituents of digitan are insoluble in cold water and diluted acids, but are easily soluble in weak alkalis.

Digitan responds to the following identity test: If 0.1 Gm. digitan is underlaid with about 3 Cc. of glacial acetic acid which contains 1 per cent. of a 5 per cent. solution of ferric sulphate, there appears a red band (presence of digitalin) and above this another, at first bright green, later changing to dark green and finally blue (presence of digitoxin). To determine the digitoxin content, 10 Gm. of digitan are dissolved with moderate heat in 50 Cc. of water; 5 Cc. or 10 per cent. ammonia water are added and the liquid is then extracted with chloroform. The chloroformic extractions are filtered into a tared vessel and the chloroform removed by distillation. The residue is dissolved in 3 Gm. of chloroform and mixed with 7 Gm. of ether and 50 Gm. of petroleum ether. The separated flakes are collected on a small filter. Then the residue on the filter is dissolved in absolute alcohol, allowing the solution to run into the tared distilling vessel. The alcohol is then distilled off and the residue dried to constant weight. The digitoxin thus found should not amount to more than 0.04 Gm. The physiologic activity is determined by the method of Gottlieb: 1 Gm. of digitan is treated with 19 Cc. of hot water and 1 Cc. of a 2 per cent. solution of sodium bicarbonate. If now 0.15 Cc., 0.2 Cc., and 0.25 Cc., respectively, of this solution is injected into the femoral lymphatics of freshly caught land frogs (*Rana temporaria*), weighing 30 Gm. each, the exposed heart of the animals should permanently be brought to a stop in the majority of instances (say in five out of six experiments) within half an hour after the administration of a 0.2 Cc. dose. If 0.2 Cc. of the 5 per cent solution (containing 0.01 Gm. of digitan) is sufficient to stop the [illegible] within half an hour, then 1 Gm. of digitan will contain 100 units; should 0.25 Cc. of the 5 per cent. solution be necessary, the number of units of digitan it contains would be 80; if 0.25 Cc. should not yet prove sufficient, the preparation would be too weak to be effective; and should the systole be arrested after a dose of 0.15 Cc. within half an hour after injection, the preparation would be too strong. The total physiologic activity having been determined, the relative amount that is due to digitoxin can be determined by using the digitoxin separated in the foregoing quantitative determination and by the difference between this amount and the total physiologic activity the amount due to the digitalin alone can be estimated.

NEOARSPHENAMINE (See New and Nonofficial Remedies, 1918, p. 47).

Neoarsenobenzol (Dermatological Research Laboratories).—A brand of neoarsphenamine.

Manufactured by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa., under U. S. patent reissue No. 13,848 (Dec. 15, *1914*; expires 1931) by license of the U. S. Federal Trade Commission.

Neoarsenobenzol (Dermatological Research Laboratories) 0.1 Gm. Ampules.—Each hermetically sealed ampule contains neoarsenobenzol (Dermatological Research Laboratories) 0.1 Gm.

Neoarsenobenzol (Dermatological Research Laboratories) 0.3 Gm. Ampules.—Each hermetically sealed ampule contains neoarsenobenzol (Dermatological Research Laboratories) 0.3 Gm.

Neoarsenobenzol (Dermatological Research Laboratories) 0.45 Gm. Ampules.—Each hermetically sealed ampule contains neoarsenobenzol (Dermatological Research Laboratories) 0.45 Gm.

Neoarsenobenzol (Dermatological Research Laboratories) 0.6 Gm. Ampules.—Each hermetically sealed ampule contains neoarsenobenzol (Dermatological Research Laboratories) 0.6 Gm.

Neoarsenobenzol (Dermatological Research Laboratories) 0.75 Gm. Ampules.—Each hermetically sealed ampule contains neoarsenobenzol (Dermatological Research Laboratories) 0.75 Gm.

Neoarsenobenzol (Dermatological Research Laboratories) 0.9 Gm. Ampules.—Each hermetically sealed ampule contains neoarsenobenzol (Dermatological Research Laboratories) 0.9 Gm.

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SATURDAY, JANUARY 25, 1919

THE SUPPLY OF PRACTICAL NURSES

What's the matter with the trained nurse? A wave of harsh and resentful criticism of the professional nurse seems to be sweeping over the country. In spite of a recognition of her splendid achievement in remaking hospital nursing, and of setting up high standards for private nursing; in spite of her magnificent and sacrificial service in the great war, she is not now viewed by large numbers of physicians and laymen as a ministering angel of mercy or as an unmixed blessing. And when rebuked for these harsh expressions of disapproval, her unfeeling critics forcefully reply: "She is getting just what she deserves." What does it mean?

Is it because through high standards of admission to her schools, and long years of training before she is graduated, she has chosen to make herself one of a small body of the elect, a superior being? Is it because with the high cost of living and the scarcity of these chosen few she has, labor-union-like, demanded higher pay which only the well-to-do can give? Is it because in the home she is autocratic and unwilling to serve except in accordance with rules that she herself lays down, often demanding that service be rendered her and causing discord in the household management at a time of crisis? Is it because in many hospitals she has gradually acquired more influence and power until through her officials she speaks with authority even to the management, and dictatorially demands that before the interests of the medical staff are considered—sometimes even before the interests of the patients—there must be considered those of the nurses? Perhaps there is a little truth in each one of these reasons. Perhaps in this resentful criticism, narrow as it may be, the nurses are reaping what they have sown.

The war and the epidemic of influenza, with the consequent scarcity of nurses, have acutely drawn attention to the trained nurse and to the fact that she does not supply the suitable agent for ministering to the large body of the ill. The very poor may get free nursing in the hospitals or, if lucky, at their homes through charity; the rich can and will pay whatever may be demanded; but the large mass of people of moderate means, too self-respecting to accept charity, not able to pay the high price of the expert nurse, must be deprived of her services or secure them at what to these people is often a ruinous sacrifice. More than this: a nurse of the highly trained type is not necessary or even desirable in the vast majority of cases of illness.

What are the requirements of a capable, skilled nurse, a physician's assistant? First a right personality; without this she is hopeless. Then intelligence, by which we mean a readiness of comprehension and understanding. Further, she should be of fair education, able to make herself understood, to write, to read, to reason. Lastly, she should have had training of sufficient length, probably one year, in a good hospital. This training should teach her the proper bed care of the ill, the preparation of food, the management of the patient—not his illness—and the methods of administering drugs and other remedial agents. She should learn enough of anatomy so that she will not, with her hypodermic syringe, enter the brachial artery; she should know enough of symptomatology to sense the possible significance of blood in the stool or of abdominal pain in typhoid; she should know enough pathology so that she will not wilfully violate the physician's orders against massaging a thrombosed femoral vein; she should have enough theoretical and practical training in bacteriology so that aseptic methods are to her, through her grasp of the reasons underlying them, methods to be scrupulously followed.

It goes without saying that other things—personality, native intelligence, etc.—being equal, the college or high school graduate will grasp these facts more readily and will, to this extent, be the more competent nurse. But such superknowledge is not necessary. For 90 per cent. of cases of illness, a skilled nurse with the characteristics just enumerated and with one year's training will answer fully as well and will fit into the average household better. She will be a true physician's assistant and will be a household helper not too proud to assist in the kitchen or even to help care for the baby. If this is true, why should not this capable woman of ordinary but sufficient ability and training be allowed to practice her profession licensed by the state and earning an honorable livelihood?

There is a place for the highly trained nurse, the registered nurse of today. From their ranks will come the superintendents of the training schools of various grades, the head nurses in our hospitals, the nurses in our operating rooms, nurses for cases of special severity or complication, and the teachers of nurses. Let the training schools preserve their high ideals, though there may be question as to the necessity or wisdom of requiring even a high school degree for admission or a three years' course of training except in special cases or for postgraduate work. For her own good let the nurse be a little less autocratic, a little less dictatorial, a little more human. *Non ministrari sed ministrare* is as good a motto for a training school as for a woman's college. The trained nurse from having been a luxury has become a public necessity, like the telephone and railroad. Should not methods less like those of selfish private ownership give way to those wherein service to the sick public is the paramount aim?

MEDICINE IN THE NEW WORLD OF PEACE

We have frequently emphasized the fact that medicine and those who practice it can never be the same after the war as before. We fully recognize that we are in the presence of a great social upheaval whose effect throughout the world will probably surpass even that momentous event known as the French Revolution. We can see only dimly whither we are tending, but it is at least evident that civilization is moving rapidly, whether down a steep place into the sea or, as some believe, up into the heights of the Promised Land. In this movement the medical profession is to a degree caught in the sweep of forces beyond its control, but it is also to a large extent potent and responsible for the part it shall play in the new era dawning on us. Many individual physicians have been more or less completely, if temporarily, uprooted by mobilization for war, and the whole medical profession, like many other professions, has been jostled out of its stability and routine. It is a time to many for strenuous readjustment; it is also an unequaled opportunity for surveying the future of medicine and formulating plans for a rational development. One thing is certain: that no limited considerations of self interest are going to satisfy either the bulk of medical practitioners or the public they serve. The practice of medicine will more than ever be regarded not merely as a means of earning a livelihood but as an essential service to mankind.

It would not be desirable to consider here all the possibilities of change, even could we envisage these possibilities. But there is at least one aspect of medicine that the future is very certain to bring still more into the foreground: This is the side of medicine that is concerned with the prevention of disease, the preservation of the public health. Like many truths that have become wearisome through reiteration, the doctrine that from the standpoint of the community the prevention of disease is more important than its cure has come to sound dully on our ears. It has been said so often that many of us feel that we have done something about it. And yet every student of public health knows that hardly a beginning has been made in the application of our existing knowledge to the solution of public health problems. Available information is not utilized; suitable procedures are not carried out at all or are carried out wastefully and inefficiently; the opinion of the amateur or of the facile newspaper hygienist has as much weight with the public as the opinion of the expert.

These are all familiar conditions, but the medical profession has thus far failed to consider the situation seriously enough. The creation and proper maintenance of a national department of health would undoubtedly help toward the more general recognition of the importance of preventive medicine, but at best this would be only a preliminary. The real reform must be based on the training of a sufficiently large number of men in the principles of public health so that a body of educated, expert opinion in the medical profession will appreciate what can be done and what ought to be done, and will stand solidly back of attempts to introduce public health measures and to strengthen public health organization. Thus far, as everybody knows, little has been done to expand the work in preventive medicine in many of our leading medical schools to a degree at all commensurate with its importance in the future of American medicine.

The situation is simply this: Civilized peoples are spending vast sums in the work of palliating and remedying the results of disease, and relatively little in preventing disease. Reconstruction of ravaged territory is sometimes necessary; but a world with eyes fixed on a peace congress does not need to be told that our main concern is to choke off the agencies of devastation before they become operative. The responsibility of laying much more stress than heretofore on the prevention of disease rests primarily on the medical profession. There are at least two ways in which the conspicuousness into which the war has thrown this side of medicine can be immediately utilized in furthering the interests of public health: One is the support of public health authorities by individual physicians. The other is the frank, efficient and immediate recognition of the importance of preventive medicine in the curriculums of our medical schools.

THE METABOLISM OF NONSPECIFIC INFLAMMATORY PROCESSES

The entrance of various micro-organisms into the body, particularly when their invasion is localized in such ways as to give rise to septic inflammations, is attended by well recognized, pronounced reactions. These are varied and may include fever, loss of weight and leukocytosis, along with marked disturbances in nitrogenous metabolism. Ordinarily it is assumed that this untoward response is due to the toxins or other ill defined and undefined products of the invading bacteria—a specific reaction. Thus in such types of septic inflammation as septicemia, peritonitis and pneumonia there is in addition to more familiar clinical manifestations a definite rise in the nonprotein and urea nitrogen of the blood.[1] Some cases show a great rise above normal (more than 100 mg. of nonprotein nitrogen per hundred c.c. of blood), without evidence of kidney lesions sufficiently severe to indicate retention of metabolites as the cause of the high figures cited.

Whipple[2] and his associates of the Hooper Foundation for Medical Research at the University of California have submitted evidence to show that suppurative processes or acute inflammation due to a chemical irritant can bring about the same changes as those represented by the inflammatory reaction caused by some specific bacterial agent, *when the latter is* limited to the initial location. Evidently nonspecific intoxication must account for the sterile reactions produced. Whipple has accordingly formulated the hypothesis that the injury done by means of a sterile abscess may be made up mainly of two factors: (1) a local injury of tissue by the chemical irritant, and (2) general injury of body protein by means of toxic split products absorbed from the site of local injury. That is, the locally injured cell protoplasm undergoes prompt autolysis with escape of toxic protein cleavage products. Since septic inflammations show an almost identical acute reaction and injury of body protein, the deduction is obvious that "a great part, at least, of the reaction in septic inflammation is truly nonspecific and results from the primary injury of the host's protein and cell autolysis."

This view is by no means an orthodox one. It is in good part based on Whipple's finding that in the intoxication following intestinal obstruction there is a very marked increment in the nonprotein nitrogen of the blood. Whipple claims to have isolated a "toxic proteose," injection of which causes a profound disturbance of tissue equilibrium as indicated by the altered nitrogenous metabolism. With Van Slyke[3] he has observed that these changes are identical with those following the feeding of large amounts of protein. These facts, Whipple and Van Slyke remark, indicate that the proteose intoxication causes an abnormally rapid autodigestion of tissue proteins, but that the nitrogenous end-products are, in chief part at least, the same that result from normal catabolism of food proteins. There is no evidence, they add, that the autolytic products play any part in causing the intoxication. The possibility of such a part and a resultant vicious circle is not excluded, but from the available facts the autolysis appears more as a result than a cause of the intoxication. It seems possible, to Whipple and Van Slyke, that in disease or intoxication, tissue catabolism may be enormously accelerated and yet yield the end-products of normal protein breakdown.

We may agree that the interesting results following injection of a sterile substance represent a good example of accelerated protein catabolism and tissue autolysis caused by the action of a toxin, uncomplicated by the presence of parasites, by abnormally high temperature, or by any other apparent factors save the toxin itself. The analogy—to describe the facts in a purely objective way—between the manifestations of septic inflammations and nonbacterial reactions unquestionably emphasizes most prominently the nonspecific nature of the responses in many supposedly specific infections or processes. But we may be justified in hesitating to identify the materies morbi in all these cases with an ill defined proteose until the physiologic chemistry of this aspect of the subject is pursued somewhat farther.

CENTENARY OF THE AMERICAN JOURNAL OF SCIENCE

It would be unfortunate indeed if the distractions of the world war and the enormous demands made by it on the energies of men in medicine compelled them to overlook entirely what would have been, in peace times, a significant event. Last July the *American Journal of Science,* familiarly known for many years as *Silliman's Journal,* celebrated its centennial. This is the only scientific periodical in this country to maintain an uninterrupted existence since that early date, and this honor is shared with hardly more than half a dozen other independent scientific periodicals in the world at large. Similar publications of learned societies for the same period are also few in number. The history of the enterprise, together with reviews of the century's progress in the fundamental physical, chemical and biologic sciences, written by eminent men of science, has been published in an anniversary issue.[1]

Amid the wealth of contributions that a hundred years have afforded in the form of papers or reviews on almost every field of scientific endeavor, and even to some extent outside of this precise domain, we feel impelled to mention two items of singular interest to medical readers. One of these pertains to the description of chloroform by Samuel Guthrie of Sackett's Harbor, N. Y. In a letter published in *Silliman's Journal* in 1832,[2] he describes a "cheap and easy process" for preparing "*chloric ether*" (chloroform), having been impelled thereto by reading of its possible

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[1] Schwartz, Harold, and McGill, Caroline: Blood Urea Determinations in Two Hundred and Eleven Cases, Arch. Int. Med. **11:** 42 (Jan.) 1916. Cooke, J. V., and Whipple, G. H.: Proteose Intoxications and Injury of Body Protein, V, The Increase in Nonprotein Nitrogen of the Blood in Acute Inflammatory Processes and Acute Intoxications, J. Exper. Med. **28:** 243, 1918.

[2] Cooke, J. V., and Whipple, G. H.: *Proteose* Intoxications and Injury of Body Protein, IV, The Metabolism of Dogs with Sterile Abscess, Pancreatitis and Pleuritis, J. Exper. Med. **28:** 223, 1918.

[3] Whipple, G. H., and Van Slyke, D. D.: Proteose *Intoxications* and Injury of Body Protein, III, Toxic Protein Catabolism and Its Influence on the Nonprotein Partition of the Blood, J. Exper. Med., **28:** 213, 1918.

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[1] Am. J. Sc. **46** (July) 1918.

[2] Guthrie, S.: New Method of Preparing a Spirituous Solution of Chloric Ether, Am. J. Sc. **21:** 60, 405, 1832.

medicinal powers in Silliman's "Elements of Chemistry." Silliman himself records in the same volume of his journal (p. 405) that he was in the habit of preparing "an alcoholic solution of this ether," diluting it with water to the proper degree, and then calling the attention of the medical students to its remarkably grateful properties as a cordial, suggesting at the same time the probability that it might prove a valuable medicine. Dr. Eli Ives, professor in the Medical Institution of Yale College in 1832, reported favorable effects of the administration of "chloric ether" both by mouth and through inhalation. He remarks: "I have been pleased with the operation of this ether; it is diffusible in its action like the other ethers, it possesses the peculiar properties of chlorin, and it has this advantage over the sulphuric or other ethers, that it is always grateful. I have known no child refuse it." In the light of the current prohibition movement it is interesting to read a further comment of the editor, Professor Silliman: "We ought to discountenance any other than a medical use of this singular solution; unless indeed it should be found of utility in some of the arts. He would be no benefactor of his species, who should add a new attraction to intoxicating spirit."

The second item of historical value relates to the earliest analyses of human gastric juice obtained by Dr. William Beaumont from his classic case of gastric fistula. In his entertaining life of Beaumont, Jesse S. Myer has recorded how samples of the secretion were submitted to Professor Silliman at Yale. The latter, desiring the support of a chemist of wider experience in organic analysis, sent a sample to the far-famed Berzelius of Sweden. The reply of the latter, published in *Silliman's Journal*,[3] affords an interesting commentary on the status of physiologic chemistry in the early decades of the nineteenth century. The gastric juice sent in April, 1833, did not arrive at Stockholm until the close of the month of August; yet Berzelius reports that "it had not become at all putrescent." This is in accord with the observation of Spallanzani, who reported many years before that the gastric juice is antiseptic.

The unique character of the hitherto unanalyzed gastric fluid proved a stumbling block even to Berzelius' skill as an analyst. Here is his comment: "I could not make this analysis with any hope of success. I assure you that I commenced, but the difficulties immediately arrested me. On testing the gastric juice with litmus paper, I found it strongly acid. The acids are for the most part volatile. . . . Now it was necessary to make a plan of the analysis—but how could I make a plan, the nature of the substances to be separated being unknown?" Thus it was left to Prout to discover the true nature of the acid secreted by the stomach.

Current Comment

THE TREATMENT OF INSANE SOLDIERS

Under the heading of "A Crying Outrage,"[1] the *North American Review's War Weekly* editorially protests against the treatment of soldiers suffering from shell shock, who, the reader is informed, are sent to St. Elizabeth's, the government hospital for the insane. "The mere fact," says the editorial, "that men suffering from shell shock should be confined in an institution where conditions must inevitably aggravate their malady, makes it imperative that the attention of the public be called to such heartless and unscientific treatment." These ideas of insanity are evidently quite as accurate as the writer's knowledge of the plans being followed by the Surgeon-General of the Army in caring for the class of cases referred to. Many of the men committed to the insane asylum, according to the *War Weekly*, "are keenly alive to the danger involved," "they plead pitifully to be sent elsewhere," "they argue with force and lucidity that the character of their affliction is only temporary," they insist that "incarceration in an insane asylum, where they are thrown with the hopelessly insane, must almost inevitably aggravate their troubles, and probably will change what are now temporary aberrations into permanent insanity." This description of nervous diseases is interesting, though hardly authoritative, and impresses no one except the uninformed reader. The medical profession and the American public have consistently and unhesitatingly supported the administration of the Medical Department of the Army. They have as yet had no cause to regret their confidence. While they will hardly regard the editor of the *North American Review* as a competent or qualified critic on medical subjects, it is perhaps not amiss to state the facts regarding the treatment of soldiers suffering from nervous and mental conditions developing in the service. The so-called shell shock cases are not sent to St. Elizabeth's; only general paretic and unimprovable insane epileptics are sent to that institution from the Army; all other insane patients are treated in military hospitals until the possibility of recovery or improvement is eliminated. Special hospitals for mental cases have been established at Fort Porter, N. Y., Danville, N. Y., and East Norfolk, Mass. Special beds for mental patients have been set aside at Bloomingdale Hospital, New York. Special wards for these patients have been created at Walter Reed Hospital, Fort McPherson, Fort Sheridan, Fort Benjamin Harrison, Letterman General Hospital, Fort Sam Houston and Madison Barracks. These special hospitals and wards have been purposely distributed over the country so that patients may be treated as near their homes as possible. They are in charge of psychiatrists and specialists of experience, drawn, for the most part, from the civil hospital services. Patients recovering within four months are discharged from the service; those showing *no improvement* at the end of four months' treatment are transferred to St. Elizabeth's in accordance with Army regulations. Before being so transferred, they are discharged from the service, as St. Elizabeth's is a government hospital under the care of the Department of the Interior and is not in charge of the Medical Department of the Army. Shell shock does not mean insanity, and the patients suffering from shell shock alone never see St. Elizabeth's. In caring for the health of our army of more than 4,000,000 soldiers, the Medical Department has established an enviable record. It is not even presumable that such treatment as that described in the editorial referred to occurred, or that it could occur. In any event, how much better would it have been if, instead of making such an attack as this, the *Weekly* had simply asked for the facts before commenting. If any suspicion exists as to the treatment of ill or wounded soldiers or sailors, in any instance, the Surgeon-General of the Army, or Navy, will undoubtedly be very ready to give the facts regarding any such instance, or an opportunity for an investigation.

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[3] Am. J. Sc. 27: 406, 1835.

[1] "A Crying Outrage," North American Review's Weekly, Jan. 4, 1919, p. 12.

A LINE OFFICER'S OPINION OF THE ARMY MEDICAL DEPARTMENT

Hon. F. H. La Guardia, member of Congress from New York City, has recently returned to his place in the House of Representatives after serving with the American Expeditionary Forces in France as a major of the line. In a recent debate in Congress, Mr. La Guardia took the opportunity to reply to the criticism that had been made two days before regarding Walter Reed Hospital. The criticism was contained in a letter to a member of Congress regarding the treatment given an officer who had died in the contagious ward of the hospital. On referring the letter to the Surgeon-General, an immediate investigation was directed and one of the leading internists on duty at the Surgeon-General's Office was detailed to make the investigation. The report disclosed that the officer in question was admitted to the hospital on the sixth day of a pneumonia following influenza; at the time of admission, the patient's temperature was 104; pulse, 100; respiration, 32; the patient was cyanotic with definite consolidation, dulness, bronchial breathing and moist râles—in a word, he presented the typical picture of an advanced pneumonia. He died in twenty-four hours. A carefully detailed report submitted to the Surgeon-General revealed that the medical attention given the patient was of the highest character and that there was no evidence of neglect in any way. In asking to have the report to the Surgeon-General introduced into the record, Major La Guardia took occasion to pay a high tribute to the work of the Medical Department abroad. Coming from a distinguished Army officer and a medical layman who has seen the workings of the Medical Department of the Army at first hand under conditions as they exist at the front, Major La Guardia's impressions are of the highest value. He said:

> Mr. Chairman, it has been, and I suppose it will be so often, my unpleasant and painful duty to criticize various departments and bureaus of our government for their conduct of the war, that it is a pleasure on this occasion to testify to the excellent work and the perfect organization of the Surgeon-General's Office overseas. The gentleman from New York (Mr. Haskell) had read the other day a complaint about a case in the Walter Reed Hospital, in Washington. I have no actual information as to this particular hospital or what the Surgeon-General's Office has been doing in this country during the war, so I asked for a report covering that particular case. I will have the clerk read the report, which is a full and complete answer to the complaint read into the record the other day. It is but fair to have it before the members and the country, inasmuch as the other side of the question was presented to the House.
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> I want to say that our base hospitals overseas were perfect. The work performed by the medical department right near the firing lines was wonderful. The work of our medical corps overseas was a revelation and a lesson to the armies of our allies. It is the one branch that could teach and did not require to learn from others. The sanitary work in our camps kept the disease down to an unprecedented low percentage. The best medical men of the country responded to the call, and fortunately each man was put, as far as practicable, to work for which he had specialized. The medical department of our service overseas came out of this war with a 100 per cent. perfect record.

ANTIVIVISECTIONISTS ATTACK THE RED CROSS

The *Open Door* and the *Journal of Zoophily*, antivivisection journals, recently published "A Call to Arms." This is signed by Mrs. Diana Belais, editor of the *Open Door*. This "manifesto" amounts to a rabid attack on the Red Cross, and was published at about the time the recent Red Cross drive was starting. The attack opens with this appeal: "Please remember the tyrannical methods frequently used by the Red Cross and be prepared to resist them." It closes with the adjuration: "Do not let us weaken our own cause by assisting in placing on our necks indefinitely an incubus like that of the Red Cross." The readers are told that they must fight for "freedom from coercion at the hands of health boards and their medical-political henchmen." What is meant by this "freedom" is indicated by a standing invitation signed by Mrs. Diana Belais on the last page of the cover of the *Open Door*. It is addressed to "all Anti-Vaccinationists, Anti-Vivisectionists, Eclectics, Homeopaths, Chiropaths, Osteopaths, Naturopaths of all branches, Christian Scientists, New Thoughtists, Theosophists, Medical Freedomists . . . to enroll as active participants in an Association of Free People against Medical Tyranny." Certainly the appeal is made in a catholic spirit, at least so far as regards those who are to be included. There may be some "paths" or "ists" omitted, but even those mentioned ought to form a very happy (?) combination. We commiserate our homeopathic and eclectic friends, who undoubtedly have been included without their consent. The attack on the Red Cross—an organization which has done marvelous service for our soldiers at home and abroad—is, if those who make it did but realize, a piece of crass stupidity which cannot fail to create antagonism to the misguided editor of the *Open Door* and her deluded friends. The Red Cross is too deeply rooted in the love and admiration of all people to be disturbed by such nonsense. In their aspirations for notoriety, the rabid antivivisectionists never seem to hesitate to attack the most philanthropic organization, the most altruistic individual, and even the liberal government which permits them to speak their bigoted utterances without restraint.

THE REWARD OF FASTING

Some of our readers, if there are any whose memory carries them back more than a generation, will recall the popular interest awakened by the demonstrations of the person termed the Great Faster. This individual, Dr. Harry Tanner, who in the eighties of the last century declared that he would live longer than other men by fasting while they ate, drank and were merry, has just died at the age of 91 years. During visits to England in the days of his enthusiasm he actually gave "lessons" on how to fast; and his bold utterances provoked some discussion on the part of both the laity and the profession. The theories that have been advanced to account for exceptional old age are so varied and contradictory that it would be rash indeed to utter a parting "Well done" to the departed faster. The liberal use of tobacco and spirits, as well as the most rigid abstemiousness, have equally been credited with age-prolonging virtues. What the liberal ingestion of sour milk is reputed to have accomplished for some persons in stretching their span of life might equally well be charged to sour grapes in the case of others. And as for the virtues of fasting, they seem to find ever new applications. For one person they form the basis for earnest religious observance; for another they constitute a universal panacea for health; and how far fasting is from being out of fashion is indicated by its popularity at the present moment as a mode of treatment in diabetes. From some of the reports it would seem as if the rationing system of the Germans and their allies, the Turks, had vacillated between rigid economy in nutrition and actual starvation—presumably to the advantage of those who survived. The press notices of the demise of Dr. Tanner leave us somewhat in doubt as to whether the reward of fasting was worth the effort; for the message regarding this "foodless man" contained the laconic sentence: "He is believed to have ended his days without relations."

UNSUCCESSFUL ATTEMPTS TO TRANSMIT INFLUENZA EXPERIMENTALLY

Two extensive attempts have been made under the auspices of the United States Public Health Service and the United States Navy—one at Boston and one at San Francisco—to transmit influenza experimentally.[1] Sixty-eight men from the naval detention camp at Deer Island volunteered for the experiment at Boston. These volunteers had been exposed in some degree to influenza, but most of them gave no history of any illness suggestive of an attack of influenza. Inoculations were made of pure cultures of the influenza bacillus, of secretions from the upper air passages of persons in the early stage of influenza, and of blood from typical cases of influenza. Suspensions of freshly isolated bacilli were introduced into the nose. Both filtered and unfiltered secretions from the air passages of typical cases of influenza in the active stages of the disease were inoculated by means of spraying and swabbing of the nose and throat. Volunteers were placed in very close association for a few minutes with each of ten selected influenza patients, who were instructed to cough directly into their faces. Filtered secretions and the blood from influenza patients were injected subcutaneously into a group of volunteers. In San Francisco the volunteers had not been exposed to influenza at all in the present epidemic, but they had been vaccinated with large doses of a mixed vaccine of influenza bacilli, pneumococci and hemolytic streptococci. In view of the negative results, however, of such vaccinations in controlled experiments,[2] it is believed that this vaccine may be regarded as having no influence. Here also suspensions of influenzal bacilli were introduced into the nose. In one group the suspension was first filtered through a Berkefeld candle. Filtered, as well as unfiltered, emulsions of respiratory secretions from active cases of influenza were introduced into the nose. Filtered emulsion was dropped into the eye and injected subcutaneously. Blood taken during the active stages of influenza was injected subcutaneously. Not one of the many volunteers in these two series of experiments developed influenza. Three volunteers who received the filtered secretions developed acute tonsillitis, and in two, cultures gave almost pure growths of hemolytic streptococci. That so many attempts to transmit influenza should fail is a great surprise and disappointment in view of the positive results reported by Nicolle and Le Bailly.[3] The results of these experiments may naturally be the subject of much speculation. However, it is certain that the cause of influenza remains a mystery to be solved only by continued experiment. In the meantime, we must not relax our effort to control the disease and its complications according to the principle that both are droplet infections, with special attention to the probabilities brought out by these experiments that uncomplicated influenza is infectious in the earliest stages of the attack.

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[1] Some Interesting Though Unsuccessful Attempts to Transmit Influenza Experimentally, Pub. Health Rep. **34**: 33 (Jan. 10) 1919.

[2] McCoy, G. W.; Murray, V. B., and Teeter, A. L.: The Failure of a Bacterial Vaccine as a Prophylactic Against Influenza, J. A. M. A. **71**: 1997 (Dec. 14) 1918.

[3] Nicolle, Charles, and Le Bailly, Charles: Quelques notions expérimentales sur le virus de la *grippe*, *Compt.* rend. Acad. d. sc. **167**: 607, 1918. Is Influenza Due to a Filtrable Virus? editorial, J. A. M. A. **71**: 2154 (Dec. 28) 1918.

Treatment of Enlargement of the Thymus.—A recent abstract in the *Correspondenz-Blatt für Schweizer Aerzte* states that W. Birk insists on the absolutely different clinical picture presented with simple enlargement of the thymus and that with the thymus-lymphatic state. The former, simple enlargement of the thymus, usually develops during fetal existence, and the trachea is compressed by the abnormally large thymus even before birth. Death is the result of suffocation, the already damaged trachea becoming compressed to the point of suffocation. The status thymicolymphaticus, on the other hand, is not congenital, and in this the constitution and the food are of paramount importance, while these have no influence on the congenitally enlarged thymus. But the latter can be modified by the roentgen rays, and Birk reports five cases in which the excessively large thymus promptly shrank to normal size under the exposures. In one case the gland enlarged again later, but in all the others the cure was prompt and permanent.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending January 17, there were in the Medical Corps 626 officers. This personnel includes 48 majors, 87 captains and 491 lieutenants. There were in the regular Medical Corps 24,871, a decrease of 1,146 since the previous week. Discharges to date include 10,579 officers.

Distinguished Service Cross Awards

The Distinguished Service Cross has been awarded to the following medical officers:

Passed Assistant Surgeon FREDERICK R. HOOK, U. S. Navy, attached to 5th Regiment United States Marine Corps. "For extraordinary heroism in action near St. Etienne, France, Oct. 4 to 6, 1918. Passed Assistant Surgeon Hook established an advanced dressing station in an exposed position under heavy artillery and machine gun fire. He worked fearlessly and unceasingly giving first aid to the wounded and directing their evacuation until ordered to move to the rear."

First Lieut. JOHN F. WEBER, M. C., U. S. Army, Florence, N. J., assigned 311th Infantry, "For extraordinary heroism in action near Vieville-en-Haye, France, Sept. 29, 1918, Chevieres, France, Oct. 15, 1918, and Grandpre, France, Oct. 25, 1918. On September 29, and the following days, Lieutenant Weber, returned to his aid station under shell and machine gun fire giving medical aid and directing the evacuation of wounded. On October 15 he established an unprotected aid station and was slightly gassed; he continued to give first aid to the wounded and directed their evacuation. On October 25, Lieut. Weber left his battalion in support and continued to the town of Grandpre where he established an aid station, keeping on his work through heavy bombardment of the town."

Lieut. OTHEL J. GEE, M. C., U. S. Army, 20th Field Artillery. "For extraordinary heroism in action near Vieville-en-Haye, France, Sept. 27, 1918. Lieutenant Gee voluntarily ran to the assistance of a wounded soldier, dressed his wounds, and carried him to shelter through severe shell fire."

Passed Asst. Surg. PRESTON ALEXANDER McLENDON, U. S. Navy, attached 5th Regiment, U. S. M. C. "For extraordinary heroism in action near Blancmont, France, Oct. 3 and 4, 1918. During heavy action, Passed Assistant Surgeon McLendon, continually pushed his dressing station to more advantageous positions. Although in great danger because of a severe shelling, Surgeon McLendon dressed his patients in an exposed position, using his dugout for the seriously wounded."

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L., signifies lieutenant; C., captain; M., major; L.C., lieutenant-colonel, and Col., colonel.

ALABAMA

Athens—King, C. O. (L.)
Birmingham—King, V. D. (L.)
Scott, E. L. (C.)
Brantley—Horn, S. W. (L.)
Camden—McClurkin, W. N. (L.)
Carrollton—Hill, H. W. (L.)
Clanton—Johnson, A. (L.)
Dora—Tait, P. K. (L.)
Echola—Hall, G. W. (L.)
Ethelsville—Stokes, W. T. (L.)
Heflin—Morgan, J. R. (L.)
Midland—Mixson, W. D. (L.)
Montgomery—Pollard, C. T. (M.)
Nauvoo—Sankey, J. M. (L.)
Pratt City—Cornelius, D. R. (L.)
Pritchard—Long, D. J. (L.)

ALASKA

Anchorage—Lovas, A. (L.)

ARIZONA

Flagstaff—Manning, T. P. (L.)

ARKANSAS

Argenta—Henderson, T. (L.)
Ben Lomond—King, E. R. (L.)
Green Forest—Morrow, F. R. (L.)
Hot Springs—Cook, A. H. (L.)
Little Rock—Chesnutt, C. R. (L.)
Corney, R. B. (L.)
Staples, D. (L.)
Wood, G. C. (L.)
Magazine—Scott, E. E. (L.)
Mansfield—Brown, J. R. (L.)
Monticello—Gates, S. M. (L.)
Paris—Jones, W. E. (L.)
[illegible] N. (L.)
[illegible] C. (L.)
Reyno—Smith, R. O. (L.)
Roland—Brooks, C. M. (L.)
Russellville—Gardner, L. (L.)
Texarkana—Embrey, W. S. (L.)
Willow—Thornton, J. D. (L.)

CALIFORNIA

Alameda—Crittenden, C. (L.)
Alleghany—Norman, J. G. (L.)
Berkeley—Scroggs, W. R. (L.)
Coalings—Mountford, G. T. (L.)
Farmington—Terrill, C. L. (L.)
Fresno—Channesian, F. (L.)
Glendale—Smith, H. C. (L.)
Lindsay—Shoemaker, H. R. D. (L.)
Los Angeles—Albert, W. (L.)
Brown, H. V. (C.)
Ferry, F. C. (C.)
Gummess, E. C. (L.)
McIntyre, T. A. (L.)
McKittreck—Hamilton, J. R. (L.)
Montague—Pius, C. (L.)
Oakland—Clark, J. E. (C.)
Palo Alto—Schaupp, K. L. (L.)
Redlands—Burke, W. P. (C.)
Shreck, J. A. (C.)
San Bernardino—Smith, R. M. (L.)
San Diego—Shelton, R. O. (C.)
Taylor, F. W. H. (L.)
San Francisco—Breslin, F. J. (L.)
Ham, J. G. (C.)
Kanzler, R. (L.)
Watsonville—Koepke, F. H. (L.)

CANAL ZONE

Ancon—Meares, W. B., Jr. (L.)

COLORADO

Boulder—Le Rossignol, W. J. (L.)
Colorado Springs—Hills, W. K. (L.)
Denver—Sheldon, R. F. (L.)
Fleming—Van Landerghem, F. P. H. (L.)
Fort Collins—Taylor, T. C. (C.)
Grover—Stewart, J. G. (L.)
Haxtun—McKnight, J. H. (L.)
Montrose—Bell, S. H. (C.)
Pueblo—Heller, F. M. (L.)
Rifle—Smith, A. E. (L.)

CONNECTICUT

Bridgeport—Maxwell, J. A. (L.)
Danielson—Todd, F. P. (C.)
Hartford—Reynolds, H. S. (L.)
New Haven—Churchman, J. W. (L.)
Winternitz, M. C. (M.)

DELAWARE

New Castle—Roth, R. R. (L.)

DISTRICT OF COLUMBIA

Washington—Harvison, D. B. (L.)
MacMurphy, G. Y. (L.)
Mann, J. T. (L.)
Murphy, J. A. (L.)
Thompson, E. D. (C.)

FLORIDA

Glen St. Mary—Crockett, E. W. (L.)
Jacksonville—Beckman, G. E. (L.)
Key West—Plummer, G. R. (M.)
Kissimmee—Geiger, H. S. (C.)
Lee—Mickler, W. S. (L.)
Live Oaks—Chalker, R. E. (L.)
Nocatee—Highsmith, G. F. (L.)
Wauchula—Kayton, M. C. (L.)
Worthington—Phillips, J. O. (L.)

GEORGIA

Adel—Hall, E. J. (L.)
Atlanta—Carothers, J. B. (L.)
Peacock, C. L. (L.)
Speir, R. J. (L.)
Barnett—Howard, P. M. (L.)
Blakely—Alexander, W. H. (L.)
Bronwood—Hooten, C. G. (L.)
Buchanan—Sanford, E. F. (L.)
Carrollton—Barker, H. L. (L.)
Chickamauga—Stiltner, H. F. (L.)
Collins—Harris, J. C. (L.)
Darien—McBryde, S. (L.)
Doles—Johns, S. W. (L.)
Fayetteville—Malone, O. T. (L.)
Fort Valley—Hickson, M. L. (L.)
Jefferson—Campbell, J. H. (L.)
Mears—Mims, F. (C.)
Millen—Mulkey, Q. A. (L.)
Milltown—Burch, R. N. (L.)
Morven—Burkhalter, J. F. (L.)
Nelson—Turk, J. P. (L.)
Pinehurst—Lee, J. L. (L.)
Quitman—McMichael, J. R. (L.)
Sasser—Cranford, O. G. (C.)
Savannah—Bishop, E. L. (L.)
Iseman, E. (L.)
Smyrna—Cofer, O. S. (L.)
Sycamore—Harrison, W. A. (L.)

IDAHO

Anthony—Boucher, F. E. (L.)
Ashton—Hargis, D. L. (L.)
Blackfoot—Simmons, H. J. (L.)
Boise—Falk, R. (C.)
Buhl—Irmen, F. A. (L.)
Cottonwood—Shinnick, J. D. (C.)
Idaho Falls—Spencer, H. D. (C.)
Kellogg—Hardy, E. E. (L.)
Parma—Allen, C. B. (C.)
Peck—Lyle, J. M. (L.)
Ropert—Elmore, E. H. (L.)
Troy—Henkle, C. K. (L.)

ILLINOIS

Apple River—Brink, C. A. (C.)
Rogde, J. (L.)
Aurora—Rogers, P. E. (L.)
Uehren, W. A. (C.)
Banner—Botts, G. S. (L.)
Barrington—Barbee, M. (L.)
Barry—Johnson, C. A. (L.)
Batavia—West, J. C. (C.)
Belleville—Huwatcheck, F. G. (L.)
Jacobson, R. W. J. (L.)
Benld—Tripodi, A. (L.)
Bloomington—Brian, F. W. (C.)
Blue Island—McCowan, D. G. (L.)
Canton—Rogers, H. H. (L.)
[illegible] L. J. (L.)
[illegible] H. A. (L.)
[illegible] O. J. (L.)
[illegible] D. (L.)
Apfelbach, G. L. (L.)
Arkin, M. L. (L.)
Augustus, B. (L.)
Bau, H. W. (L.)
Bernstet, C. M. (L.)
Blakeman, L. J. (L.)
Buran, D. D. (L.)
Claggett, A. N. (C.)
Cohn, E. J. (L.)
Conroy, C. L. (C.)
Czajkowski, S. (L.)
Ellison, A. O. (L.)
Eustice, E. L. (L.)
Fisher, F. A. (C.)
Funkhouser, O. B. (L.)
Gates, G. F. (L.)
Goetzinger, C. F. (L.)
Goone, W. N. (L.)
Harkness, C. A. (L.)
Hartwell, B. O. (L.)
Henkin, H. (L.)
Hofman, H. (L.)
Hutton, J. H. (L.)
Johnston, J. A. (L.)
Kerr, G. A. (L.)
Kloos, F. C. (L.)
Knoll, R. F. (L.)
Kositchek, S. B. (L.)
Chicago—Kramer, J. H. (L.)
Kraus, H. A. (L.)
Krogh, C. A. (L.)
Leatherwood, T. F. (L.)
Oliver, L. B. E. (L.)
Pond, D. B. (M.)
Pratt, G. N. (M.)
Robins, C. A. (L.)
Scheier, A. M. (L.)
Sheldon, H. D. (L.)
Siegel, M. (L.)
Snyder, P. F. (L.)
Sullivan, H. S. (L.)
Sutch, A. K. (L.)
Tabenski, L. (L.)
Wayland, S. (C.)
West, S. G. (C.)
Clinton—Carter, C. W. (C.)
Dunlap—Fitch, F. T. (L.)
Durand—Kassmeyer, J. C. (L.)
Effingham—Holman, C. C. (L.)
Elizabeth—Hagie, F. E. (L.)
Eureka—Smith, R. H. (L.)
Fairview—Crouch, W. L. (L.)
Farmer City—Hathaway, R. M. (L.)
Flora—Finch, R. D. (L.)
Forrest—Hamilton, O. P. (L.)
Galesburg—Tate, L. N. (C.)
Greenbush—Pittman, S. M. (L.)
Harvey—Steiner, I. W. (L.)
Herrin—Boles, D. S. (L.)
Joliet—Chmelik, F. J. (L.)
Kincaid—Klein, G. C. (L.)
Macomb—Knappenberger, G. E. (L.)
Mason City—Caton, W. M. (L.)
Mattoon—Baker, J. G. (C.)
Hardinger, B. H. (L.)
Morrison—Sullivan, E. P. (C.)
Nokomis—Hoyt, J. M. (L.)
Odell—Tombaugh, J. L. (L.)
Ottawa—Parr, S. E. (L.)
Paris—Slaughter, A. W. (L.)
Pawpaw—Avery, W. M. (L.)
Pekin—Balcke, W. A. (C.)
Polo—Inks, F. E. (L.)
Princeton—Nix, M. A. (L.)
Princeville—Fuson, A. A. (L.)
Red Bud—Le Saulnier, H. L. (L.)
Rockford—Boswell, C. H. (L.)
Rockport—Gay, F. S. (L.)
Rossville—Howard, E. E. (L.)
Seneca—Coulter, W. E. (L.)
Springfield—Compton, C. W. (C.)
Mautz, G. J. (L.)
Tallula—Valentine, R. E. (L.)
Utica—Antle, J. S. (L.)
Vermont—Boynton, L. (L.)
Virginia—McGee, J. A. (L.)
Waukegan—Foley, J. C. (C.)
Waynesville—Marvell, J. E. (L.)

INDIANA

[illegible] H. L. (L.)
[illegible] W. (L.)
Bremen—Schut, [illegible] S. (L.)
Crothersville—Adair, W. K. (L.)
East Chicago—Johns, D. R. (L.)
Farmersburg—Oliphant, J. T. (L.)
Fishers—Black, V. G. (L.)
Fort Wayne—Van Buskirk, E. M. (C.)
French Lick—Beatty, G. S. (C.)
Gary—Greene, G. S. (C.)
Kan, A. M. (L.)
Toner, T. J. (C.)
Greenfield—*Bruner*, C. H. (L.)
Ramsey, R. B. (L.)
Huntingburg—Steinkamp, E. F. (L.)
Indianapolis—Christie, J. P. (L.)
Hendricks, A. H. (L.)
Lemmon, H. J. (L.)
Kokomo—Scott, W. I. (L.)
Lowell—Iddings, J. W. (C.)
Marengo—Grant, P. T. (L.)
Marion—Brown, C. R. (L.)
Marysville—Smith, T. M. (L.)
Mishawaka—Bostwock, J. G. (L.)
Breach, C. A. (C.)
New Augusta—Asher, E. O. (L.)
Noblesville—Sturdevant, J. D. (C.)
North Vernon—Green, J. H. (L.)
Paoli—Lingle, S. L. (L.)
Potoka—Arthur, M. L. (C.)
Richmond—Bramkamp, A. L. (C.)
South Bend—Cooper, H. L. (L.)
Savery, C. E. (L.)
Tennyson—Spradley, L. G. (L.)
Union City—Ruby, F. M. (L.)
Uttica—Bagby, W. A. (L.)
Valparaiso—Baker, N. A. (L.)
Walton—Flanagan, E. P. (L.)
Hatfield, J. F. (L.)
West Terre Haute—Shanklin, V. A. (L.)
Whiteland—Williams, L. P. V. (C.)

IOWA

Anita—Becker, R. A. (L.)
Bellevue—Lampe, E. L. (L.)
Birmingham—Strickling, F. E. (L.)
Brooklyn—Simeral, F. E. (L.)
Burt—Clapsaddle, J. G. (L.)
Cedar Falls—Van Dyck, J. H. (L.)
Clear Lake—Scanlon, F. T. (C.)
Columbus Junction—Huston, D. F. (L.)
Davenport—Bawden, G. S. (L.)
Stoecks, W. A. (C.)
Dickens—Bruce, J. H. (L.)
Dubuque—Walker, J. M. (C.)
Eldora—King, D. O. (L.)
Greene—Stober, R. W. (L.)
Lehigh—Gibsoin, G. (L.)
Low Moor—Luse, R. F. (L.)
Mason City—Brisbine, R. E. (L.)
Morley—Jacobs, T. D. (L.)
Nodaway—Worley, W. H. (C.)
Ottumwa—Newell, F. W. (L.)
Rockford—Yenerich, C. O. (L.)
Ryan—Cummings, W. C. (L.)
Sheldon—Brackney, H. J. (C.)
Sioux City—Reeder, J. E. (L.)
Waterloo—Nesbitt, W. M. (L.)
Whiting—Ingham, P. G. (L.)
Stauch, M. O. (L.)
Woodburn—Bowen, F. S. (L.)

KANSAS

Abilene—Attwood, C. F. (L.)
Athol—Scott, W. W. (L.)
Baxter Springs—Scott, W. R. (L.)
Bronson—Tanquary, E. D. (L.)
Burdick—Lovene, A. W. (L.)
Chanute—Baird, O. C. (C.)
Columbus—Brookhart, H. H. (L.)
Concordia—Laing, R. (L.)
Crestline—Iliff, W. H. (L.)
Dodge City—Munford, R. H. (L.)
Dwight—Brethour, G. E. (L.)
Florence—Brakebill, M. L. (L.)
Galena—Browne, H. A. (C.)
Havensville—McManis, J. E. (L.)
Hoisington—Brown, T. J. (L.)
Hoyt—Talbot, H. B. (L.)
Kansas City—Reeves, E. A. (C.)
Smith, G. H. (L.)
Kingman—Longenecker, C. W. (L.)
Mayetta—Austin, O. W. N. (L.)
National Military Home—Fryer, J. L. (M.)
Norton—Cassel, O. M. (L.)
Sabetha—Haynes, A. H. (L.)
Salina—Loyd, P. A. (L.)
Sedan—Landin, G. D. (L.)
Shawnee—Thomas, B. D. (L.)
Sterling—Bentley, H. M. (L.)
Topeka—Loveland, F. L. (L.)
O'Connell, J. H. (L.)
O'Connor, T. A. (L.)
Turon—Grieve, G. H. (L.)
Walnut—Mehrle, M. (L.)
Waterville—Coe, W. B. (C.)
Wichita—Fisher, R. S. C. (L.)
Johnson, C. N. (L.)
Matteson, G. W. (L.)
Shirley, G. H. (L.)
Sutter, L. A. (L.)

KENTUCKY

Baskett—Hodges, J. R. (L.)
Carrollton—Gaines, F. M. (C.)
Chaplin—Nichols, W. P. (L.)
Covington—Nelson, T. H. (L.)
Sallee, T. (L.)
Wilson, H. F. (C.)
De Mossville—Mann, H. F. (L.)
Earlington—Morse, W. L. (L.)
Ekron—Stith, S. H. (L.)
Guthrie—Frey, E. M. (C.)
Harrodsburg—Coleman, D. H. (L.)
Hazel—Crawford, R. P. (L.)
Hickory—Shelton, W. J. (L.)
Kevil—Rudolph, L. (L.)
Knottsville—Popham, A. E. (L.)
Lancaster—Acton, J. M. (L.)
Lexington—Van Meter, B. F. (C.)
Louisville—Leachman, G. C. (M.)
Stroud, J. B. (L.)
McKinney—Smith, J. B. (C.)
Owensboro—McGary, J. R. (L.)
Sumner, R. S. (L.)
Owenton—Chrisman, J. H. (C.)
Paducah—Shemwell, A. H. (L.)
Quail—McWilliams, W. E. (L.)
Valley Station—Shacklette, W. G. (L.)

LOUISIANA

Belmont—Litton, W. L. (L.)
New Orleans—Estopinal, J. A. (C.)
Latiolais, T. (L.)
Miller, H. E. (L.)
Scharff, E. S. (L.)
Shaw—Pittman, J. L. (C.)
St. Francisville—Barrow, A. F. (C.)

MAINE

Augusta—Kupelian, N. S. (L.)
Bingham—Hopkins, P. O. (L.)
Lewiston—Roy, L. O. (L.)

MARYLAND

Adamstown—Hume, R. C. (L.)
Baltimore—Beasley, E. B. (L.)
Kearney, F. X. (L.)
Timberlake, G. (M.)

MASSACHUSETTS

Ashburnham—Bates, C. A. (L.)
Beverly—Murphy, D. F. (L.)
Boston—Allard, C. E. (L.)
Buckley, W. S. (C.)
Capelle, C. S. (C.)
Faulkner, W. E. (M.)
McCormack, J. S. (L.)
Sanborn, J. W. (C.)
Sheldon, R. F. (L.)
Brockton—Callahan, J. F. (C.)
Brookline—Connolly, J. E. (L.)
Sexton, F. J. (C.)
Chelsea—Marnoy, S. L. (L.)
Cliftondale—Harris, L. W. (L.)
Fall River—Kaufman, S. B. (L.)
Holyoke—Cavanaugh, T. E. (C.)
Housatonic—O'Connor, A. M. (L.)
Lawrence—Levek, J. A. (L.)
Reed, V. A. (C.)
Leominster—Shultis, F. C. (C.)
Lynn—Gray, G. H. (M.)
Hoitt, C. L. (L.)
Trask, J. W. (C.)
Marks—Neal, S. F. (L.)
Mellis—Hill, E. L. (L.)
North Adams—Crofts, N. M. (L.)
Pittsfield—Norton, T. J. (L.)
Somerville—Walker, H. A. (L.)
Springfield—Metivier, A. O. (L.)
Sweeney, E. J. (C.)
Taunton—Sayles, J. B. (C.)
Webster—Smith, E. E. (L.)
Williamsett—Mead, F. A. (L.)
Winchester—Maynard, H. E. (C.)

MICHIGAN

Adrian—Hewes, A. B. (L.)
Allegan—Osman, E. D. (C.)
Crystal Falls—Rovik, L. E. (L.)
Detroit—Brooks, C. D. (M.)
Brownell, W. S. (C.)
Brunke, B. B. (L.)
Burns, J. K., Jr. (L.)
Hargrave, D. V. (C.)
Honhart, F. L. (L.)
Palmer, A. A. (L.)
Robinson, M. B. (L.)
Sachnovitz, M. (L.)
Shafer, H. A. (C.)
Sherman, W. L. (L.)
Truesdell, C. E. (L.)
Turrell, C. M. (L.)
Edenville—Heslop, J. E. (L.)
Flint—Houton, J. H. (L.)
Stampa, S. (L.)
Flushing—Smith, D. C. (L.)
Ganges—Brunson, E. T. (L.)
Jackson—Hurley, H. L. (L.)
Marsh, D. B. (L.)
Lansing—Ellis, C. W. (L.)
Linden—Sleeman, B. R. (L.)
Livering—Brown, J. B. (C.)
North Port Point—Owsley, P. O. (L.)
Ovid—Taylor, R. M. (L.)
Saginaw—English, W. F. (M.)
Pike, N. J. (C.)

MINNESOTA

Akeley—Goodheart, C. J. (L.)
Appleton—Shelver, H. J. (L.)
Belview—Aldrich, F. H. (C.)
Benson—Kolset, C. D. (L.)
Duluth—Olson, O. S. (L.)
Schwartz, A. H. (L.)
Fergus Falls—Kittelson, T. N. (L.)
Glenville—Freeman, J. P. (C.)
Granite Falls—Eisengraeber, G. A. (L.)
Hibbing—Carstens, C. F. (L.)
Little Falls—Holst, C. F. (L.)
Long Lake—Nickerson, W. S. (C.)
Milaca—Olsen, S. H. (L.)
Minneapolis—Klint, A. J. (L.)
Lysne, H. (L.)
Nannestad, J. R. (L.)
Nedergaard, N. (L.)
Silvertsen, A. (L.)
Tanner, A. C. (C.)
Ortonville—O'Donnell, D. M. (L.)
St. Cloud—Stangl, P. E. (L.)
St. Paul—Jarvis, B. W. (L.)
McCarthy, W. R. (L.)
Neher, F. H. (L.)
Windom—Ravn, B. (L.)

MISSISSIPPI

Booneville—Jones, O. C. (L.)
Clarkesdale—Sauls, J. D. (L.)
S. (C.)
D. (L.)
H. H. (L.)
Jackson—Lea, J. W. (M.)
Pace—Danner, J. J. (L.)
Pinola—Kyger, A. F. (L.)
Sledge—Oliver, H. B. (L.)
Starkville—Barr, F. E. (L.)

MISSOURI

Affton—Kelley, W. L. (L.)
Atlanta—Cambre, A. L. (L.)
Boonville—Van Ravenswaay, C. H. (C.)
Brunswick—Austin, M. B. (C.)
Cameron—Stockfieth, P. H. (L.)
Center—Norton, H. B. (L.)
(L.)
(L.)
(L.)
L. (C.)
M. T. (L.)
Fulton—McCubbin, J. B. (L.)
Hardin—Stapp, J. H. (L.)
High Hill—Best, J. (L.)
Hughesville—Bishop, W. T. (C.)
Kansas City—Crawford, J. R. (L.)
Mackey, J. F. (C.)
McCartney, O. P. (L.)
Outland, J. H. (M.)
Sawyer, T. T. (C.)
Kirkwood—Worth, D. S. (C.)
La Grange—Hamlin, J. R. (L.)
Marceline—Scott, J. B. (L.)
Maryville—Bell, C. T. (C.)
Mendon—Orr, C. A. (L.)
Monett—Boehm, J. D. (L.)
Osceola—Sullivan, E. W. (L.)
Otterville—Osborne, C. D. (L.)
Poplar Bluff—Cadwell, V. (C.)
Princeton—Laws, C. J. (L.)
Roscoe—Stratton, C. S. (L.)
St. Joseph—Hunt, W. J. (L.)
Simmons, B. B. (C.)
Stevenson, G. R. (L.)
St. Louis—Boogher, F. (C.)
Briggs, G. Y. (C.)
Byrd, R. L. (L.)
Eck, P. A. (L.)
Ewing, F. C. (M.)
Glazer, M. J. (L.)
Gzell, R. (L.)
Henke, C. F. (L.)
Kirsch, F. W. (L.)
O'Connell, J. (L.)
Scherer, P. H. (L.)
Smith, F. J. (L.)
Toomey, T. N. (L.)
Williamsburg—Courshon, A. J. (L.)

MONTANA

Billings—Graham, J. H. (L.)
Circle—*Koehler*, H. L. (L.)
Great Falls—Keenan, F. E. (L.)
Helena—Horsky, R. (M.)
Joplin—Palm, W. G. (L.)
Miles City—Buskirk, W. H. (C.)
Poplar—Harris, H. G. (L.)
Stockett—Smith, W. R. (L.)

NEBRASKA

Beatrice—Tyrrell, A. A. (L.)
Central City—Boyd, E. E. (C.)
Danbury—Ryan, M. (L.)
Exeter—Craft, R. R. (L.)
Franklin—Feese, J. P. (C.)
Gothenburg—Stevenson, E. C. (C.)
Hastings—Carson, W. T. (C.)
Herman—Cameron, A. J. (C.)
Holstein—Kidder, C. E. (L.)
Memphis—Packer, J. M. (L.)
Omaha—Johnston, R. S. (L.)
McCrann, W. J. (L.)
McGuire, L. D. (L.)
Swoboda, J. P. (L.)
Ravenna—Buol, G. (L.)
Scottsbluff—Stoops, J. N. (L.)
Sprague—Lamb, W. E. (L.)
Wallace—Newman, J. C. (L.)

NEW HAMPSHIRE

Concord—Johnson, G. A. (L.)
Henniken—Cole, C. I. (L.)
Laconia—Hout, P. R. (L.)

NEW JERSEY

Asbury Park—Fitch, G. W. (C.)
Butler—McDonald, R. J. (L.)
East Orange—Straub, H. H. (L.)
Elizabeth—Schlichter, C. H. (L.-C.)
Graitwood—Brundage, P. E. (C.)
Irvington—Simmons, A. V. V. (L.)
Jersey City—Johnston, H. H. (L.)
Largay, A. O. (L.)
Maines, A. T. (L.)
Jersey City—Murphy, E. A. (L.)
Ovens, R. C. (L.)
Shipman, F. C. (L.)
Newark—Benton, N. K. (C.)
Lippincott, J. D. (M.)
Martine, F. L. (L.)
Mathcke, O. G. (L.)
Nydes, J. (L.)
Orange—Trautmann, H. (L.)
Paterson—McDede, F. F. (C.)
Spickers, W. (L.)
Princeton—Freese, J. A. (C.)
West Hoboken—Allen, I. L. (L.)
West Orange—Eveleth, C. W. (C).

NEW MEXICO

Artesia—Stroup, H. A. (L.)
Dawson—Elliott, C. B. (L.)
Johnson, W. E. (L.)
Roswell—Anderson, F. L. (C.)
Swearingen, D. D. (C.)

NEW YORK

Attica—Stedman, E. B. (L.)
Batavia—Lessur, H. H. (L.)
Bedford Hills—Briggs, E. F. (C.)
Brockport—Waterman, M. R. (C.)
Brooklyn—Bliss, R. F. (L.)
Colson, J. D. (L.)
Rauh, M. T. (L.)
Saltzman, E. A. (L.)
Siudzinski, M. R. (L.)
Stephany, A. R. (L.)
Buffalo—Babcock, L. K. (L.)
Brumbert, D. (L.)
Burke, J. P. F. (M.)
Cooley, R. L. (L.)
Jones, W. H. (L.)
Jung, D., Jr. (L.)
Michel, G. P. (L.)
Thompson, M. A. (L.)
Clifton Springs—Nicholson, S. T. (L.)
Elmira—Palmer, W. A. (L.)
Hudson—Bradley, O. H. (L.)
Newark—Kelley, L. S. (L.)
New York—Barker, P. M. (C.)
Barsky, M. H. (L.)
Blood, R. G. (L.)
Bloom, N. N. (L.)
Blue, G. E. (L.)
Bright, A. C. (L.)
Calvelli, A. F. (L.)
Chambers, A. L. (L.)
Clery, B. (L.)
Costigan, G. (C.)
Fincke, H. S. (C.)
Frankfeldt, F. M. (L.)
Jennings, E. A. (L.)
Jones, L. J. (L.)
Kugel, I. H. (L.)
Larkin, C. L. (L.)
Lenetska, W. (L.)
Mintz, M. E. (L.)
Moffett, R. D. (M.)
Morton, H. T. (M.)
O'Connor, J. M. (L.)
Riley, H. A. (C.)
Rock, S. W. (L.)
Schechter, J. (L.)
Scheer, H. M. (L.)
Shapiro, I. F. (L.)
Shipton, G. M. (L.)
Staab, E. A. (L.)
Stack, T. V. (L.)
Stein, S. (L.)
Sullivan, A. B. (L.)
Taylor, C. C. (L.)
Whitbeck, B. H. (M.)
Niagara Falls—Childs, C. C. (L.)
Oneonta—Lang, L. S. (L.)
Parish—Ingalls, S. S. (L.)
Rochester—Goler, G. W. (C.)
St. John, H. L. (L.)
Spencerport—Lenhart, C. G. (L.)
Syracuse—Devine, R. J. (L.)
Tannersville—Baldwin, H. G. (L.)
Van Etten—Colegrove, B. F. (C.)
Warsaw—Crawford, J. F. (L.)
Yonkers—Kunstler, M. B. (L.)

NORTH CAROLINA

Asheville—Adams, J. L. (L.)
Cove City—Milbee, R. O. (L.)
East Flat Rock—Cliff, B. F. (L.)
T. A. (C.)
C. (L.)
F. A. (C.)
Wadesboro—Maynard, J. D. (L.)
Wadeston—Henry, T. B. (L.)
Wilmington—Bowdoin, G. E. (L.)

NORTH DAKOTA

Bismarck—Mella, H. (L.)
Jamestown—Gerrish, W. A. (M.)
Langdon—Towey, J. W. (L.)

OHIO

Akron—Malloy, E. B. (L.)
Amherst—McQueen, A. F. (L.)
Barnesville—Stephens, W. E. (L.)
Belleville—Caris, T. (L.)

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending January 17, there were in the Medical Corps 626 officers. This personnel includes 48 majors, 87 captains and 491 lieutenants. There were in the regular Medical Corps 24,871, a decrease of 1,146 since the previous week. Discharges to date include 10,579 officers.

Distinguished Service Cross Awards

The Distinguished Service Cross has been awarded to the following medical officers:

Passed Assistant Surgeon FREDERICK R. HOOK, U. S. Navy, attached to 5th Regiment United States Marine Corps. "For extraordinary heroism in action near St. Etienne, France, Oct. 4 to 6, 1918. Passed Assistant Surgeon Hook established an advanced dressing station in an exposed position under heavy artillery and machine gun fire. He worked fearlessly and unceasingly giving first aid to the wounded and directing their evacuation until ordered to move to the rear."

First Lieut. JOHN F. WEBER, M. C., U. S. Army, Florence, N. J., assigned 311th Infantry, "For extraordinary heroism in action near Vieville-en-Haye, France, Sept. 29, 1918, Chevieres, France, Oct. 15, 1918, and Grandpre, France, Oct. 25, 1918. On September 29, and the following days, Lieutenant Weber, returned to his aid station under shell and machine gun fire giving medical aid and directing the evacuation of wounded. On October 15 he established an unprotected aid station and was slightly gassed; he continued to give first aid to the wounded and directed their evacuation. On October 25, Lieut. Weber left his battalion in support and continued to the town of Grandpre where he established an aid station, keeping on his work through heavy bombardment of the town."

Lieut. OTHEL J. GEE, M. C., U. S. Army, 20th Field Artillery. "For extraordinary heroism in action near Vieville-en-Haye, France, Sept. 27, 1918. Lieutenant Gee voluntarily ran to the assistance of a wounded soldier, dressed his wounds, and carried him to shelter through severe shell fire."

Passed Asst. Surg. PRESTON ALEXANDER McLENDON, U. S. Navy, attached 5th Regiment, U. S. M. C. "For extraordinary heroism in action near Blancmont, France, Oct. 3 and 4, 1918. During heavy action, Passed Assistant Surgeon McLendon, continually pushed his dressing station to more advantageous positions. Although in great danger because of a severe shelling, Surgeon McLendon dressed his patients in an exposed position, using his dugout for the seriously wounded."

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L., signifies lieutenant; C., captain; M., major; L.C., lieutenant-colonel, and Col., colonel.

ALABAMA

Athens—King, C. O. (L.)
Birmingham—King, V. D. (L.)
Scott, E. L. (C.)
Brantley—Horn, S. W. (L.)
Camden—McClurkin, W. N. (L.)
Carrollton—Hill, H. W. (L.)
Clanton—Johnson, A. (L.)
Dora—Tait, P. K. (L.)
Echola—Hall, G. W. (L.)
Ethelsville—Stokes, W. T. (L.)
Heflin—Morgan, J. R. (L.)
Midland—Mixson, W. D. (L.)
Montgomery—Pollard, C. T. (M.)
Nauvoo—Sankey, J. M. (L.)
Pratt City—Cornelius, D. R. (L.)
Pritchard—Long, D. J. (L.)

ALASKA

Anchorage—Lovas, A. (L.)

ARIZONA

Flagstaff—Manning, T. P. (L.)

ARKANSAS

Argenta—Henderson, T. (L.)
Ben Lomond—King, E. R. (L.)
Green Forest—Morrow, F. R. (L.)
Hot Springs—Cook, A. H. (L.)
Little Rock—Chesnutt, C. R. (L.)
Corney, R. B. (L.)
Staples, D. (L.)
Wood, G. C. (L.)
Magazine—Scott, E. E. (L.)
Mansfield—Brown, J. R. (L.)
Monticello—Gates, S. M. (L.)
Paris—Jones, W. E. (L.)
Plumerville—Horton, N. (L.)
Rector—Hughey, M. C. (L.)
Reyno—Smith, R. O. (L.)
Roland—Brooks, C. M. (L.)
Russellville—Gardner, L. (L.)
Texarkana—Embrey, W. S. (L.)
Willow—Thornton, J. D. (L.)

CALIFORNIA

Alameda—Crittenden, C. (L.)
Alleghany—Norman, J. G. (L.)
Berkeley—Scroggs, W. R. (L.)
Coalings—Mountford, G. T. (L.)
Farmington—Terrill, C. L. (L.)
Fresno—Channesian, F. (L.)
Glendale—Smith, H. C. (L.)
Lindsay—Shoemaker, H. R. D. (L.)
Los Angeles—Albert, W. (L.)
Brown, H. V. (C.)
Ferry, F. C. (C.)
Gummess, E. C. (L.)
McIntyre, T. A. (L.)
McKittreck—Hamilton, J. R. (L.)
Montague—Pius, C. (L.)
Oakland—Clark, J. E. (C.)
Palo Alto—Schaupp, K. L. (L.)
Redlands—Burke, W. P. (C.)
Shreck, J. A. (C.)
San Bernardino—Smith, R. M. (L.)
San Diego—Shelton, R. O. (C.)
Taylor, F. W. H. (L.)
San Francisco—Breslin, F. J. (L.)
Ham, J. G. (C.)
Kanzler, R. (L.)
Watsonville—Koepke, F. H. (L.)

CANAL ZONE

Ancon—Meares, W. B., Jr. (L.)

COLORADO

Boulder—Le Rossignol, W. J. (L.)
Colorado Springs—Hills, W. K. (L.)
Denver—Sheldon, R. F. (L.)
Fleming—Van Landerghem, F. P. H. (L.)
Fort Collins—Taylor, T. C. (C.)
Grover—Stewart, J. G. (L.)
Haxtun—McKnight, J. H. (L.)
Montrose—Bell, S. H. (C.)
Pueblo—Heller, F. M. (L.)
Rifle—Smith, A. E. (L.)

CONNECTICUT

Bridgeport—Maxwell, J. A. (L.)
Danielson—Todd, F. P. (C.)
Hartford—Reynolds, H. S. (L.)
New Haven—Churchman, J. W. (L.)
Winternitz, M. C. (M.)

DELAWARE

New Castle—Roth, R. R. (L.)

DISTRICT OF COLUMBIA

Washington—Harvison, D. B. (L.)
MacMurphy, G. Y. (L.)
Mann, J. T. (L.)
Murphy, J. A. (L.)
Thompson, E. D. (C.)

FLORIDA

Glen St. Mary—Crockett, E. W. (L.)
Jacksonville—Beckman, G. E. (L.)
Key West—Plummer, G. R. (M.)
Kissimmee—Geiger, H. S. (C.)
Lee—Mickler, W. S. (L.)
Live Oaks—Chalker, R. E. (L.)
Nocatee—Highsmith, G. F. (L.)
Wauchula—Kayton, M. C. (L.)
Worthington—Phillips, J. O. (L.)

GEORGIA

Adel—Hall, E. J. (L.)
Atlanta—Carothers, J. B. (L.)
Peacock, C. L. (L.)
Speir, R. J. (L.)
Barnett—Howard, P. M. (L.)
Blakely—Alexander, W. H. (L.)
Bronwood—Hooten, C. G. (L.)
Buchanan—Sanford, E. F. (L.)
Carrollton—Barker, H. L. (L.)
Chickamauga—Stiltner, H. F. (L.)
Collins—Harris, J. C. (L.)
Darien—McBryde, S. (L.)
Doles—Johns, S. W. (L.)
Fayetteville—Malone, O. T. (L.)
Fort Valley—Hickson, M. L. (L.)
Jefferson—Campbell, J. H. (L.)
Mears—Mims, F. (C.)
Millen—Mulkey, O. A. (L.)
Milltown—Burch, R. N. (L.)
Morven—Burkhalter, J. F. (L.)
Nelson—Turk, J. P. (L.)
Pinehurst—Lee, J. L. (L.)
Quitman—McMichael, J. R. (L.)
Sasser—Cranford, O. G. (C.)
Savannah—Bishop, E. L. (L.)
Iseman, E. (L.)
Smyrna—Cofer, O. S. (L.)
Sycamore—Harrison, W. A. (L.)

IDAHO

Anthony—Boucher, F. E. (L.)
Ashton—Hargis, D. L. (L.)
Blackfoot—Simmons, H. J. (L.)
Boise—Falk, R. (C.)
Buhl—Irmen, F. A. (L.)
Cottonwood—Shinnick, J. D. (C.)
Idaho Falls—Spencer, H. D. (C.)
Kellogg—Hardy, E. E. (L.)
Parma—Allen, C. B. (C.)
Peck—Lyle, J. M. (L.)
Ropert—Elmore, E. H. (L.)
Troy—Henkle, C. K. (L.)

ILLINOIS

Apple River—Brink, C. A. (C.)
Rogde, J. (L.)
Aurora—Rogers, P. E. (L.)
Uehren, W. A. (C.)
Banner—Botts, G. S. (L.)
Barrington—Barbee, M. (L.)
Barry—Johnson, C. A. (L.)
Batavia—West, J. C. (C.)
Belleville—Huwatcheck, F. G. (L.)
Jacobson, R. W. J. (L.)
Benld—Tripodi, A. (L.)
Bloomington—Brian, F. W. (C.)
Blue Island—McCowan, D. G. (L.)
Canton—Rogers, H. H. (L.)
Carrollton—Hensler, L. J. (L.)
Charleston—Shaffer, H. A. (L.)
Chatsworth—Sloan, O. J. (L.)
Chicago—Allen, G. D. (L.)
Apfelbach, G. L. (L.)
Arkin, M. L. (L.)
Augustus, B. (L.)
Bau, H. W. (L.)
Bernstet, C. M. (L.)
Blakeman, L. J. (L.)
Buran, D. D. (L.)
Claggett, A. N. (C.)
Cohn, E. J. (L.)
Conroy, C. L. (C.)
Czajkowski, S. (L.)
Ellison, A. O. (L.)
Eustice, E. L. (L.)
Fisher, F. A. (C.)
Funkhouser, O. B. (L.)
Gates, G. F. (L.)
Goetzinger, C. F. (L.)
Goone, W. N. (L.)
Harkness, C. A. (L.)
Hartwell, B. O. (L.)
Henkin, H. (L.)
Hofman, H. (L.)
Hutton, J. H. (L.)
Johnston, J. A. (L.)
Kerr, G. A. (L.)
Kloos, F. C. (L.)
Knoll, R. F. (L.)
Kositchek, S. B. (L.)
Chicago—Kramer, J. H. (L.)
Kraus, H. A. (L.)
Krogh, C. A. (L.)
Leatherwood, T. F. (L.)
Oliver, L. B. E. (L.)
Pond, D. B. (M.)
Pratt, G. N. (M.)
Robins, C. A. (L.)
Scheier, A. M. (L.)
Sheldon, H. D. (L.)
Siegel, M. (L.)
Snyder, P. F. (L.)
Sullivan, H. S. (L.)
Sutch, A. K. (L.)
Tabenski, L. (L.)
Wayland, S. (C.)
West, S. G. (C.)
Clinton—Carter, C. W. (C.)
Dunlap—Fitch, F. T. (L.)
Durand—Kassmeyer, J. C. (L.)
Effingham—Holman, C. C. (L.)
Elizabeth—Hagie, F. E. (L.)
Eureka—Smith, R. H. (L.)
Fairview—Crouch, W. L. (L.)
Farmer City—Hathaway, R. (L.)
Flora—Finch, R. D. (L.)
Forrest—Hamilton, O. P. (L.)
Galesburg—Tate, L. N. (C.)
Greenbush—Pittman, S. M. (L
Harvey—Steiner, I. W. (L.)
Herrin—Boles, D. S. (L.)
Joliet—Chmelik, F. J. (L.)
Kincaid—Klein, G. C. (L.)
Macomb—Knappenberger, G. (L.)
Mason City—Caton, W. M. (L
Mattoon—Baker, J. G. (C.)
Hardinger, B. H. (L.)
Morrison—Sullivan, E. P. (C.)
Nokomis—Hoyt, J. M. (L.)
Odell—Tombaugh, J. L. (L.)
Ottawa—Parr, S. E. (L.)
Paris—Slaughter, A. W. (L.)
Pawpaw—Avery, W. M. (L.)
Pekin—Balcke, W. A. (C.)
Polo—Inks, F. E. (L.)
Princeton—Nix, M. A. (L.)
Princeville—Fuson, A. A. (L.)
Red Bud—Le Saulnier, H. L. (L
Rockford—Boswell, C. H. (L.)
Rockport—Gay, F. S. (L.)
Rossville—Howard, E. E. (L.)
Seneca—Coulter, W. E. (L.)
Springfield—Compton, C. W. (C
Mautz, G. J. (L.)
Tallula—Valentine, R. E. (L.)
Utica—Antle, J. S. (L.)
Vermont—Boynton, L. (L.)
Virginia—McGee, J. A. (L.)
Waukegan—Foley, J. C. (C.)
Waynesville—Marvell, J. E. (L

INDIANA

Ashley—Cunningham, H. L. (L
Brazil—Hawkins, R. W. (L.)
Bremen—Schilt, T. S. (L.)
Crothersville—Adair, W. K. (L
East Chicago—Johns, D. R. (L
Farmersburg—Oliphant, J. T. (L
Fishers—Black, V. G. (L.)
Fort Wayne—Van Buskirk, E. (C.)
French Lick—Beatty, G. S. (C.)
Gary—Greene, G. S. (C.)
Kan, A. M. (L.)
Toner, T. J. (C.)
Greenfield—Bruner, C. H. (L.)
Ramsey, R. B. (L.)
Huntingburg—Steinkamp, E. (L.)
Indianapolis—Christie, J. P. (L.)
Hendricks, A. H. (L.)
Lemmon, H. J. (L.)
Kokomo—Scott, W. I. (L.)
Lowell—Iddings, J. W. (C.)
Marengo—Grant, P. T. (L.)
Marion—Brown, C. R. (L.)
Marysville—Smith, T. M. (L.)
Mishawaka—Bostwock, J. G. (L.)
Breach, C. A. (C.)
New Augusta—Asher, E. O. (L.)
Noblesville—Sturdevant, J. D. (C.)
North Vernon—Green, J. H. (L.)
Paoli—Lingle, S. L. (L.)
Potoka—Arthur, M. L. (C.)
Richmond—Bramkamp, A. L. (C.)
South Bend—Cooper, H. L. (L.)
Savery, C. E. (L.)
Tennyson—Spradley, L. G. (L.)
Union City—Ruby, F. M. (L.)
Uttica—Bagby, W. A. (L.)
Valparaiso—Baker, N. A. (L.)
Walton—Flanagan, E. P. (L.)
Hatfield, J. F. (L.)
West Terre Haute—Shanklin, V. A. (L.)
Whiteland—Williams, L. P. V. (C.)

Georgia

To Fort McPherson, Ga., from Camp Logan, Lieut. C. M. WEST, Atlanta.

To Rockefeller Institute for instruction, and on completion *to Carlisle, Pa.*, from Camp Gordon, Major D. B. W. GRANT.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. G. P. ROSS.

Idaho

To Fort Des Moines, Iowa, from Camp MacArthur, Lieut. J. R. YOUNG, Pocatello.

Illinois

To Azalea, N. C., from Fort Oglethorpe, Lieut. C. H. CONNOR, Chicago.

To Camp Grant, Ill., from Fort Riley, Lieut. J. I. MARTIN, Chicago.

To examine the command for nervous and mental diseases, from Camp Devens, Lieut. G. C. STIMPSON, Quincy.

To Camp Lewis, Wash., from Fort Riley, Lieuts. J. H. GAFF, D. F. O'CONNOR, I. S. SEGALL, Chicago.

To Camp Sherman, Ohio, base hospital, from Camp Wadsworth, Capt. C. M. McKENNA, Chicago.

To Camp Upton, N. Y., from Camp Crane, Lieut. G. P. GILL, Rockford.

To Camp Zachary Taylor, Ky., base hospital, from Camp Wadsworth, Capt. H. G. VAUGHAN, Oak Park.

To Chicago, Ill., from Camp Las Casas, Lieut. I. F. OATES, Chicago; from Fort Oglethorpe, Major R. W. WEBSTER, Chicago.

To Eastview, N. Y., from Camp Zachary Taylor, Lieuts. H. W. TRAUB, Chicago; F. E. KUNCE, Hopedale.

To Fort Benjamin Harrison, Ind., from Camp Greene, Capt. E. DE W. WISE, Champaign.

To Fort Sheridan, Ill., from Camp Crane, Lieut. P. B. GREENBERG, Chicago; from Camp Grant, Capt. R. HASELTINE, Chicago; from Camp Jackson, [illegible] ra; from Camp McClellan, Capt. S. [illegible] p Sevier, Lieut. S. P. BLIM, Crete; from Camp Sheridan, Lieut. M. F. McGUIRE, Chicago; from Camp Upton, Lieut. G. L. VENABLE, Chicago; from Camp Wadsworth, Lieut. M. J. [illegible] go; from Camp Zachary Taylor, Lieut. G. E. L [illegible]

To Fort Snelling, Minn., from Fort Sheridan, Lieut. H. B. THOMAS, Chicago.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Custer, Mich.*, base hospital, from Camp Hancock, Capt. W. E. POTTER, Oak Park. On completion *to his proper station*, from Camp Sherman, Lieut. E. A. WELDEN, Wheaton; from Camp Dodge, Lieut. K. A. MEYER, Chicago.

To Washington, D. C., from Baltimore, Capt. O. H. MACLAY, Chicago.

To Williamsbridge, N. Y., from Fort Oglethorpe, Capt. W. H. GALLAND, Chicago.

The following order has been revoked: *To Fort Sheridan, Ill.*, from Fort Oglethorpe, Lieut. M. T. EASTON, Peoria.

Indiana

To Army Medical School, from Pittsburgh, Lieut. H. H. BOTTS, Colfax.

To Camp Grant, Ill., from Fort Riley, Lieut. O. L. BELCHER, Monroe City.

To Camp Lewis, Wash., from Fort Riley, Lieut. H. S. HIATT, Albion.

To Camp Sherman, Ohio, base hospital, from Madison Barracks, Capt. S. A. CLARK, South Bend.

To Eastview, N. Y., from Fort Oglethorpe, Lieuts. J. H. HARE, Logansport; W. S. COLEMAN, Rushville.

To Hoboken, N. J., from Camp Meade, Capt. D. V. McCLARY, Dale.

The following order has been revoked: *To Ft. McHenry, Md.*, for instruction from Fort Oglethorpe, Capt. A. A. THOMAS, Linton.

Iowa

To Camp Dodge, Iowa, base hospital, from Camp Lee, Capt. J. G. ROBERTS, Oskaloosa.

To Camp Grant, Ill., from Fort Riley, Capt. J. M. SMITTLE, Waucoma; Lieut. G. S. WESTLY, Manly.

To Camp Jackson, S. C., to examine the command for cardiovascular diseases, from Lakewood, Lieut. A. C. DAVIS, Iowa City.

To Camp Lewis, Wash., from Fort Riley, Capt. A. G. BYERS, Albia.

To Fort Des Moines, Iowa, from Camp Grant, Lieut. B. C. HAMILTON, JR., Jefferson.

To Fort Douglas, Utah, from Camp Grant, Capt. I. E. NERVIG, Sioux City.

Kansas

To Fort Riley, from Camp Las Casas, Major J. DE W. RIDDELL, Salina. Base hospital, from Camp Devens, Capt. D. I. MAGGARD, Wichita.

To Lonoke, Ark., Eberts Field, from San Antonio, Lieut. W. S. FLEMING, Ness City.

Kentucky

To Azalea, N. C., from Fort Oglethorpe, Lieut. S. W. CROWE, Centertown.

To Camp Zachary Taylor, Ky., from Canal Zone, Lieut.-Col. A. T. McCORMACK, Bowling Green.

To Carlisle, Pa., from Camp Knox, Lieut. P. K. SAUER.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. F. E. MILLER, Covington.

Louisiana

To Colonia, N. J., from Camp Dix. Major K. W. NEY, New Orleans.

To Fort McPherson, Ga., from Camp McClellan, Lieut. R. C. VOSS, New Orleans.

Maine

To Army Medical School for instruction, from Camp McClellan, Lieut. W. E. CLARKE, Demariscotta Mills.

Maryland

To Camp Sevier, S. C., to examine the command for cardiovascular diseases, from Lakewood, Lieut. F. C. ELEDER, Baltimore.

To Fort Ontario, N. Y., from Camp Greene, Capt. A. M. STEVENS, Easton.

To Fort Snelling, Minn., from Cape May, Lieut. J. H. BAIRD, Baltimore.

To Hot Springs, N. C., from Camp Lee, Lieut. S. N. PILCHARD, Salisbury.

To the retired list, from Walter Reed General Hospital, Lieut. C. L. BAKER, Takoma Park.

To Washington, D. C., from Camp Shelby, Lieut. P. W. CHRISTMAN, Baltimore.

Massachusetts

To Army Medical School for instruction, from Camp Greene, Lieut. N. W. GILLESPIE, Boston; fr [illegible] A. KLEIN, Boston; from Camp Sheridan, L [illegible], Springfield.

To Camp Sevier, S. C., base hospital, from Camp Sherman, Capt. G. L. VOGEL, Boston.

To Detroit, Mich., from Fort Oglethorpe, Capt. H. F. DEARBORN, Lawrence.

To Fort Ontario, N. Y., Major R. J. R. CAINES, Boston; from Camp Greene, Lieut. C. F. SHARRY, Somerville.

To Fort Sam Houston, Texas, base hospital, from Camp Wheeler, Capt. H. B. OBER, Springfield.

To Fort Sill, Okla., base hospital, from Camp McClellan, Lieut. B. L. ASHMORE, Palmer.

To New Haven, Conn., from Fort Oglethorpe, Lieut. R. W. SHEEHY, Winchester.

To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hosiptal, Major J. BRYANT, Boston.

Michigan

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. G. R. YOUNG, Detroit.

To Cape May, N. J., from New York City, Lieut. C. S. KENNEDY, Detroit.

To Detroit, Mich., from Camp Pike, Lieut. J. W. GORDON, Detroit.

To Fort Sheridan, Ill., from Camp Jackson, Lieut. I. E. BITTKER, Detroit; from Camp Pike, Lieut. H. R. LEIBINGER, Detroit.

To Hoboken, N. J., from Camp Crane, Capt. G. A. HOLLIDAY, Traverse City.

To New Haven, Conn., from Fort Oglethorpe, Lieut. L. P. SCHROEDER, Calumet.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, from Camp Zachary Taylor, Lieut. J. J. O'MEARA, Jackson.

To Walter Reed General Hosiptal, D. C., from Camp Meade, Capt. H. W. PLAGGEMEYER, Detroit.

The following order has been revoked: *To Walter Reed General Hospital, D. C.*, for instruction, from Fort Oglethorpe, Lieut. S. H. CRAIG, Detroit.

Minnesota

To Camp Grant, Ill., from Camp Lewis, Capt. H. A. BURNS, Minneapolis.

To Camp Lewis, Wash., from Fort Riley, Lieut. M. SHERPER, St. Paul.

To Cape May, N. J., from Rochester, Minn., Capt. A. W. SMITH.

To Colonia, N. J., from Rochester, Minn., Lieut.-Col. C. L. GANDY.

To Fort McHenry, Md., from Rochester, Minn., Major C. L. BEAVEN.

To Fort McPherson, Ga., from Rochester, Minn., Major W. E. HALL.

To Fort Snelling, Minn., from Camp Dodge, Lieut. C. A. TRAEGER, Faribault; from Camp Hancock, Lieut. G. McCREIGHT, Albert Lea; from Camp Las Casas, Capt. C. F. McNEVIN, St. Paul; from New York City; Capt. H. A. BEAUDOUX, St. Paul.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort Des Moines, Iowa*, from Camp Benning, J. R. McVAY, Rochester.

To San Francisco, Calif., Letterman General Hospital, from Rochester, Minn., Lieut.-Col. E. C. McCULLOCH.

To Walter Reed General Hospital, D. C., from Rochester, Minn., Lieut.-Cols. N. T. KIRK, L. J. OWEN.

Mississippi

To New Haven, Conn., from Fort Oglethorpe, Lieut. E. D. KEMP, High Point.

To Washington, D. C., from San Antonio, Major R. A. STRONG, Pass Christian.

Missouri

To Biltmore, N. C., from Fort Oglethorpe, Capt. C. R. BUREN, Princeton.

To Camp Grant, Ill., from Fort Riley, Lieuts. T. H. EGBERT, Kennett; C. H. BULKLEY, La Plata.

To East Norfolk, Mass., from Camp Greene, Capt. A. G. WICHMANN, St. Louis.

To Fort Des Moines, Iowa, from Camp Upton, Lieut. N. ROSENBERG, Kansas City.

To Fort Leavenworth, Kan., from Fort Oglethorpe, Major W. L. McBRIDE, Kansas City.

To Lonoke, Ark., Eberts Field, from St. Louis, Capt. J. J. BURDICK, St. Louis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, from Camp Zachary Taylor, Capts. J. M. DEAN, J. C. DONAHUE, St. Louis.

To Williamsbrdige, N. Y., from Camp Meade, Capt. V. B. KIEFFER, St. Louis.

Nebraska

To Camp Lewis, Wash., from Camp Jackson, Major E. S. TENNEY, Lincoln; from Fort Riley, Major A. E. WESTERVELT, Craig.

To Fort Des Moines, Iowa, from Camp Zachary Taylor, Lieut. L. K. STRATE, Hastings.

To Fort Snelling, Minn., from Camp Dodge, Lieut R. L. IVINS, Crawford.

New Hampshire

To Army Medical School for instruction, from Camp McClellan, Lieut. H. E. POWERS, Manchester.

To Boston, Mass., from Camp McClellan, Capt. F. S. FOSTER, Manchester.

To Camp Devens, Mass., from Camp Las Casas, Lieut. P. A. PION, Concord.

New Jersey

To Camp Devens, Mass., as orthopedic surgeon, from Boston, Lieut. D. A. CURTIS, Paterson.

To Camp Sherman, Ohio, base hospital, from Camp Wadsworth, Lieut. H. B. EPSTEIN, Newark.

To Eastview, N. Y., from Fort Oglethorpe, Lieut. O. A. MOCKRIDGE, Newark.

To New Haven, Conn., from Fort Oglethorpe, Capt. G. L. COOK, Penns Grove.

To Newport News, Va., from Lakewood, Major T. D. HURLEY.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Col. C. C. McCULLOCH, Jr.; from Hoboken, Lieut.-Col. R. F. METCALFE.

The following order has been revokel: *To Boston, Mass.*, from Fort Oglethorpe, Capt. J. N. RYAN, Passaic.

New York

To Army Medical School, from Camp Meigs, Lieut. R. S. McBIRNEY, Glen Cove. For instruction, from Camp Hancock, Lieut. J. B. L'EPISCOPO, Brooklyn; from Camp Logan, Lieut. J. W. SMITH, Brooklyn; from Camp MacArthur, Lieut. C. GOLDMAN, *Brooklyn*; from Camp Travis, Capt. D. C. PATERSON, Yonkers; from Fort Oglethorpe, Lieut. C. A. WISCH, Niagara Falls.

To Biltmore, N. C., from Fort Oglethorpe, Lieut. R. S. BREAKEY, Monticello.

To Camp A. A. Humphreys, Va., base hospital, from Fort Oglethorpe, Lieut. A. B. FERGUSON, New York.

To Camp Abraham Eustis, Va., to examine the command for cardiovascular diseases from Lakewood, Lieut. G. C. DORSEY, New York.

To Camp Sevier, S. C., to examine the command for cardiovascular diseases, from Lakewood, Lieut. M. A. McIVER, New York.

To Camp Shelby, Miss., to examine the command for cardiovascular diseases, from Camp Abraham Eustis, Lieut. R. A. CORBIN, New York.

To Colonia, N. J., from Camp Shelby, Lieut. E. E. van DERWERKER, New York; from Camp Sheridan, Lieut. L. FASKE, Brooklyn.

To Eastview, N. Y., from New Haven, Lieut. I. E. LISS, New York.

To Erie Proving Ground, Ohio, as sanitary inspector, from Fort Oglethorpe, Capt. J. E. THOMPSON, Brooklyn.

To Fort Benjamin Harrison, Ind., from Camp Sherman, Lieut. J. G. MORRISSEY, Yonkers.

To Fort Oglethorpe, from Camp Crane, Lieut. J. J. FINIGAN, Lyons.

To Garden City, N. Y., from Rochester, N. Y., Lieut. H. A. MILLER, Rochester.

To Hoboken, N. J., from Camp Crane, Capt. J. J. COTTER, New York; from Camp Lee, Lieut. F. B. RING, Brooklyn; from Camp Sherman, Lieut. H. J. FEASTER, Brooklyn; from Fort Oglethorpe, Capt. W. N. MALONEY, Three Mile Bay.

To Long Beach, N. Y., from Camp Wadsworth, Lieut. S. O. SHUMWAY, *Brooklyn*.

To Mineola, N. Y., from Camp Dick, Capt. J. D. GULICK, Schenectady.

To New Haven, Conn., from Fort Oglethorpe, Capt. A. H. MOORE, New Rochelle; Lieuts. R. M. PALMER, Gloversville; L. ROSEN, New York.

To Rockefeller Institute for instruction, and on completion *to his proper station*, from Camp Dodge, Lieut. G. B. BROWN, Saratoga Springs; from Camp Upton, Lieut.-Col. L. R. POUST.

The following orders have been revoked: *To Camp Crane, Pa.*, Lieut. L. J. BUTLER, Albany. *To Camp Grant, Ill.*, from Fort Oglethorpe, Lieut. M. F. HALL, Elmira. *To Camp Meade, Md.*, base hospital, from Fort Oglethorpe, Capt. J. R. GRANT, Cincinnatus. *To Fort McPherson, Ga.*, from Camp Crane, Lieut. J. L. KINNER, Elmira.

North Carolina

To East Norfolk, Mass., from Hoboken, Lieut. A. S. OLIVER, Greensboro.

North Dakota

To Azalea, N. C., from Fort Oglethorpe, Lieut. H. A. BRANDES, Hebron.

To Camp Grant, Ill., from Fort Riley, Lieut. C. A. PLATOU, Litchville.

Ohio

To Biltmore, N. C., from Fort Oglethorpe, Lieut. H. J. AUSTIN, Geneva.

To Camp Sheridan, Ala., base hospital, from Camp Sevier, Lieut. W. B. GOFF, Cleveland.

To Camp Upton, N. Y., base hospital, from Madison Barracks, Major H. M. OSBORNE, Youngstown.

To Detroit, Mich., from Camp Zachary Taylor, Lieut. J. H. CHALAT, Cleveland.

To Long Beach, N. Y., from Camp Zachary Taylor, Lieut. M. C. HOUSTON, Urbana.

To New Haven, Conn., from Fort Oglethorpe, Lieut. F. E. ROSNAGLE, London.

To Newport News, Va., from Camp Sherman, Lieut.-Col. J. L. ROBINSON; from Walter Reed General Hospital, Major D. M. ROBERTS, New Richmond.

To Philadelphia, Pa., from Carlisle, Major A. C. BACHMEYER, Cincinnati.

To Williamsbridge, N. Y., from Fort Oglethorpe, Capt. A. W. WHEELER, Toledo.

The following order has been revoked: *To Camp Wheeler, Ga.*, base hospital, from Fort Oglethorpe, Lieut. F. W. DIXON, National Military Home.

Oklahoma

To Camp Grant, Ill., from Fargo, N. D., Lieut. E. F. GARLINGTON, Far River.

To Camp Shelby, Miss., as assistant to the camp surgeon, from Camp Polk, Major W. E. HARRINGTON, Wakita.

To Hoboken, N. J., from Camp Polk, Capt. J. H. STOLPER, Muskogee.

To West Baden, Ind., from Camp Zachary Taylor, Lieut. E. L. YEAKEL, Oklahoma City.

Pennsylvania

To Biltmore, N. C., from Fort Oglethorpe, Lieut. M. B. BERNARD, Philadelphia.

To Camp Dix, N. J., from Camp Las Casas, Major C. H. SMITH, Uniontown.

To Camp Grant, Ill., from Lakewood, Lieut. J. L. ARNOLD, Harrisburg.

To Colonia, N. J., from Philadelphia, Col. A. P. C. ASHURST, Philadelphia.

To Detroit, Mich., from Camp Greene, Major P. A. SHEAFF, Philadelphia.

To Fort Oglethorpe, from Camp Crane, Lieut.-Col. R. SLEE, Swiftwater.

To Fort Ontario, N. Y., from Edgewood, Lieut. T. F. ERDMAN, Reading.

To Fort Sam Houston, Texas, base hospital, from Camp Hancock, Capt. J. S. KELSEY, Pittsburgh.

To Hoboken, N. J., from Camp Crane, Capt. J. J. DONOHUE, Frackville.

To Long Beach, N. Y., from Camp Zachary Taylor, Lieut. H. C. GRIM, Trumbaursville.

To Middletown, Pa., from Camp Meade, Capt. O. G. LEWIS, Washington.

To New Haven, Conn., from Fort Oglethorpe, Lieuts. N. H. JENKINS, Kingston; B. A. McDERMOTT, G. J. SILVERMAN, Philadelphia; T. F. MOORE, Pittsburgh.

To Pittsburgh, Pa., from Camp Meade, Lieut. E. S. WEIMER, Pittsburgh.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Lieut. L. L. ROGERS, Kingston.

To Waynesville, N. C., from Fort Oglethorpe, Lieut. J. A. BAER, Honesdale.

The following orders have been revoked: *To Camp Dix, N. J.*, from Fort Oglethorpe, Lieut. A. S. CANTOR, Dickson City. *To Chicago, Ill.*, from Camp Crane, Lieut. C. B. LAMP, Seminole. *To East View, N. Y.*, from Fort Oglethorpe, Lieut. J. C. DEAL, Philadelphia.

Philippine Islands

To San Francisco, Calif., from Philippine Department, Major H. L. FREELAND, Manila.

Porto Rico

To Henry Barracks, P. R., from Camp Las Casas, Capt. A. C. SMITH, Cayey.

South Carolina

To Washington, D. C., from Charleston, Col. H. P. BIRMINGHAM. On completion *to Camp Greene, N. C.*, from Fort Oglethorpe, Capt. L. A. RISER, Columbia.

Texas

To Camp Grant, Ill., from Fort Riley, Lieut. W. P. DINGLE, Valley Mills.

To Camp Lewis, Wash., from Fort Riley, Lieut. J. J. JOHNSON, San Antonio.

To Camp MacArthur, Texas, base hospital, from Camp Dodge, Lieut. H. G. NEWSON, Dallas.

To New Haven, Conn., from Fort Oglethorpe, Lieut. C. W. WELLER, Austin.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Sherman, Lieut. M. S. SEELY, Wortham.

The following orders have been revoked: *To Camp Custer, Mich.*, base hospital, from Fort Oglethorpe, Capt. H. M. BUSH, San Antonio. *To Camp Kearney, Calif.*, base hospital, from Fort Oglethorpe, Lieut. J. R. ELLIOTT, Palacica.

Vermont

To Camp Shelby, Miss., base hospital, from Camp Wheeler, *Lieut.* L. M. KELLEY, Manchester Center.

Virginia

To Detroit, Mich., from Camp Greene, Lieut. F. H. SMITH, Abingdon.

To Richmond, Va., from Camp Travis, Lieut. W. I. LAUGHON, Bedford.

To Walter Reed General Hospital, D. C., for instruction, from Camp Lee, Capt. C. M. EDWARDS, Richmond.

Washington

To Camp Lewis, Wash., from Fort Riley, Lieut. H. F. THIEL, Creston.

West Virginia

To Army Medical School, for instruction, from Camp Grant; Lieut. L. E. DAUGHERTY, Davis.

To Biltmore, N. C., from Fort Oglethorpe, Lieut. J. A. BAKER, Shirley.

To Camp Lee, Va., base hospital, from Edgewood, Lieut. E. B. *HENSON, Charleston.*

To New Haven, Conn., from Fort Oglethorpe, Lieut. H. E. DAVIS, Switzer.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Dix, Capt. W. L. VAN SANT, Hinton.

Wisconsin

To Fort Sheridan, Ill., from Camp Hancock, Capt. E. L. BOLTON, Chilton; from Camp [illegible] D. GILLIS, Wawatosa.

To San Francisco, [illegible] General Hospital, from Jefferson Barracks, Capt. [illegible] *Fond du Lac.*

Wyoming

To Fort Ontario, N. Y., from Fort Riley, Capt. J. P. MARKLEY, Laramie.

UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg.-General A. J. McLAUGHLIN, proceed to Raleigh, N. C., and necessary points in the states of North Carolina, South Carolina, Alabama and Georgia for inspection of the work in extracantonment sanitation.

Surgeon J. W. KERR, proceed to Austin and other places in the state of Texas for study of public health conditions.

Surgeon B. J. LLOYD, relieved from duty in the 13th Naval District, resume duty at Seattle, Wash.

Surgeon EDWARD FRANCIS, report to director of the hygienic laboratory for temporary duty in connection with the investigation of the value of antipneumococcus vaccine.

Surgeon E. A. SWEET, report to director of the hygienic laboratory for temporary duty in connection with the investigation of the value of antipneumococcus vaccine.

Surgeon M. C. GUTHRIE, proceed to Southport, N. C., and assume temporary charge of Service activities at that port.

Passed Asst. Surg. C. L. WILLIAMS, proceed to Columbus, Ga., and assume temporary charge.

Passed Asst. Surg. H. C. CODY, relieved at New London, Conn., proceed to Washington, D. C., for duty in epidemiological studies of influenza.

Passed Asst. Surg. G. A. KEMPF, proceed to Washington, D. C., for temporary duty in connection with epidemiological studies of influenza.

Asst. Surg. P. D. MOSSMAN, relieved at Pensacola, Fla., proceed to Seattle, Wash., for duty.

Prof. E. B. PHELPS, proceed to Syracuse, N. Y., for duty in investigations of reconstructed milk.

Acting Asst. Surg. W. E. REASNER, proceed to Leavenworth, Kan., for duty in extracantonment sanitation.

San. Engr. C. N. HARRUB, relieved at Jacksonville, Fla., proceed to Washington, D. C., for preparation of report on pollution of coastal waters.

San. Engr. A. F. STEPHENSON, proceed to Syracuse, N. Y., for duty in investigations of reconstructed milk.

San. Engr. H. W. STREETER, report at Washington, D. C., for duty in connection with investigations of influenza and stream pollution.

San. Engr. R. B. TARBETT, proceed to Sulphur River, La., to report on supply of gas for fuel for city of Little Rock, Ark.

Scientific Asst. G. S. BOTE, relieved at Fort Worth, Texas, proceed to Fayetteville, N. C., for duty in extracantonment sanitation.

Scientific Asst. HIRAM BYRD, proceed to New York City for inspection of venereal disease clinic at the Skin and Cancer Hospital.

Scientific Asst. FORREST E. DEEDS, relieved at Fort Worth, Texas, proceed to Washington, D. C., for temporary duty; thence to Chicago for duty under the division of industrial hygiene and medicine.

Scientific Asst. LOUISE C. EISENHARDT, proceed to Waterbury, Conn., for duty in connection with field investigations of industrial fatigue.

Scientific Asst. C. G. HOBART, proceed to Chicago for duty under division of industrial hygiene and medicine.

Scientific Asst. J. T. JAMIESON, proceed to New York City for duty under division of industrial hygiene and medicine.

Scientific Asst. CARLOS I. REED, proceed to Chicago for duty in field investigations of industrial hygiene.

Scientific Asst. EDGAR D. THOMPSON, proceed to Chillicothe, Ohio, for duty in venereal disease clinic.

Public Health Statistician EDGAR SYDENSTRICKER, directed to supervise statistical work in connection with studies of pellagra, industrial hygiene and influenza at Washington, D. C.

Biochemist M. X. SULLIVAN, represent the Service at meeting of home demonstration agents of South Carolina at Winthrop College, Rock Hill, S. C.

Consulting Hygienist R. P. ALBAUGH, proceed to New York City for duty under division of industrial hygiene and medicine.

Consulting Hygienist E. B. STARR, proceed to Washington, D. C., preliminary to special investigations under the division of industrial hygiene and medicine at East St. Louis, Ill.

Lecturer LEE A. STONE, proceed to Nashville, Tenn., for conference relative to legislation for venereal disease control.

San Insp. J. H. ERVIN, proceed to Newport News, Va., for duty in connection with extracantonment sanitation.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

School Taken Over as Hospital.—Naval Officers at Mare Island arranged, January 13, to take over St. Vincent's Catholic School, Vallejo, and operate a hospital for influenza patients in these buildings.

Board of Health Resigns.—The board of health of Fresno resigned, January 3, following the failure of the city council to pass an ordinance providing for the complete closing of all places of amusement, churches and saloons as a measure to check the spread of influenza.

Work Against Tuberculosis.—The attitude of the public toward tuberculosis has changed materially since 1914, when an appropriation of $150,000 for the construction of sanatoriums failed to pass legislature. At present counties have provided special hospitals at the cost of $1,646,000 for the work against tuberculosis, and there are now fifteen subsidized hospitals either in operation or in process of construction.

Personal.—Dr. Thurlow S. Miller, San Francisco, was struck by an automobile while crossing a street, January 2, and sustained painful injuries.——Dr. Henry C. Bush, Colfax, has been appointed superintendent of the Arroyo Sanatorium, Tuberculosis Hospital of Alameda County at Livermore, to succeed Dr. Guy F. Rogers, who has resigned.——Dr. J. Severy Hibben has been appointed health officer and city physician of Pasadena, to succeed Dr. Stanley P. Black.

Medical Lectures.—Stanford University Medical School has commenced its thirty-seventh course of popular medical lectures to be held in Lane Hall, every Friday evening. The chief subject of the lectures is "Lessons of the Great War." The special subjects are: "The Rehabilitation and Reeducation of the Wounded and Injured," Mr. A. J. Pillsbury, Sr.; "What the War Has Taught Us in Regard to the Food Supply of the People," Prof. M. Jaffa; "What the War Has Taught Us in Regard to the Control of Venereal Diseases," Dr. Lewis Michelson; "What the War Has Taught Us in Regard to the Physical Condition of Our Young Men," Dr. Philip Hale Pierson; "The Children's Year; a Reconstruction Program," Dr. Adelaide Brown, and "The Control of Epidemics," Dr. William C. Hassler.

ILLINOIS

Personal.—Dr. Fred M. F. Meixner has been appointed commissioner of health of Peoria, to succeed Dr. George Parker, who has resigned.——Dr. Walter Wilhelmj has been elected chairman of the social hygiene clinic of East St. Louis.

Gastro-Enteritis Outbreak.—January 5, the commissioner of health of Peoria reported a fresh outbreak of gastroenteritis presumably due to water infection. The board of health assisted by the state department of health is endeavoring to locate the source of infection. There are from 2,000 to 3,000 cases reported in the city.

New Officers.—At the annual meeting of the St. Clair County Medical Society, held at Belleville, January 9, Dr. Walter Wilhemj, East St. Louis, was elected president; Dr. John C. Gunn, Belleville, vice president; Dr. Charles W. Lillie, East St. Louis, secretary, and Dr. Adolph E. Hansing, Belleville, was reappointed treasurer for the twentieth consecutive term.

Chicago

Honor for Occupational Therapist.—Mrs. Eleanor Slagle of the Henry Favill School of Occupational Therapy, has been appointed supervisor of aids in occupational therapy in the Medical Department of the United States Army.

Personal.—Albert E. Halstead, lieutenant-colonel, M. C., U. S. Army, is on his way home from France.——Franklin H. Martin, colonel, M. C., U. S. Army, who went abroad, November 9, reached New York, January 16, ill with bronchitis.——Leonard S. Wood, major-general, M. C., U. S. Army, has assumed command of the central department, succeeding Thomas H. Barry, major-general, U. S. Army.——Julius H. Hess, major, M. C., U. S. Army, received his discharge, December 25, as chief of the medical service of General Hospital No. 25, Fort Benjamin Harrison, Ind.

MARYLAND

Meetings.—A meeting arranged under the joint auspices of the Baltimore City Medical Society and the Red Cross Institute for the Blind was held at Osler Hall, in the Medical and Chirurgical Faculty Building, Baltimore, January 17, when Sir Arthur Pearson, the founder and director of St. Dunstan's Hostel, London, spoke on "What Is Being Done for Soldiers and Sailors Blinded in the World War at St. Dunstan's." Lieut.-Col. James Bordley, Baltimore, director of America's work for blinded soldiers, sailors and marines, told what was being done at Evergreen (U. S. Army General Hospital No. 7) and at the Red Cross Institute for the Blind in Baltimore.

Personal.—Col. Hugh Hampton Young, Major Louis C. Lehr, Washington, D. C., and Major William A. Fisher, Baltimore, are scheduled to arrive at New York aboard the *Caronia*, January 26.——Dr. Arthur Woo, chairman of the Chinese Christian Movement in Great Britain, who is at present studying at the Johns Hopkins Hospital and Medical School, gave an address at Brown Memorial Church, Baltimore. Dr. Woo was brought to this country by the Rockefeller Foundation for the purpose of studying American medical and hospital methods. Later he will visit the Mayo Clinic and finally head the medical staff at the Union Medical College at Pekin, China.——Dr. Francis X. Kearney, Baltimore, has been made superintendent of Mercy Hospital, to succeed Dr. Edward P. Smith, who resigned to enter military service.

Influenza Increasing.—More than 18,000 cases of influenza have been reported to the state board of health since January 1, but comparatively few fatalities have resulted. Because of new cases in Anne Arundel County, a number of schools in the rural section have been closed by the superintendent of education until conditions show improvement. In Montgomery County the chairman of the Red Cross chapter has asked the various Red Cross organizations to devote themselves to relieving the distress caused by the epidemic now prevailing. The idea is that each organization name a committee to take charge of the work in its locality and use funds it has available. Assistance has been sent on request to Somerset County, lower Dorchester County and Frederick County where the disease has been most prevalent, so far as the state is concerned. Two hundred and fifty-one cases were reported for Baltimore and 275 in the counties recently during a twenty-four hour period. The situation in the city was discussed at a conference Health Commissioner Blake had with the heads of the divisions constituting his department. It was shown that no section of town is free from the disease, but it is of a much milder type than heretofore. Since the beginning of the epidemic last September, 66,350 cases have been recorded at the office of the state board of health, and 22,752 at the local department, or approximately 90,000 for the city and counties.

MAINE

Tuberculosis Drive Opens.—January 6, the first day of the drive for membership campaign of the Androscoggin Anti-Tuberculosis Association, Lewiston, $5,000 was received.

Society Meeting.—At the ninety-fifth quarterly meeting of the York County Medical Society, held in Biddeford, January 2, Dr. Ansel S. Davis, Springvale, was elected president; Dr. Frank W. Smith, York Village, vice president; Dr. A. Leon Jones, Old Orchard, secretary, and Dr. Charles F. Traynor, Biddeford, treasurer.

Committee on Cancer Control.—Dr. Leverett D. Bristol, Augusta, state commissioner of health and chairman of the Maine committee for the control of cancer, has named the following physicians as members of the committee: Alfred D. Sawyer, Fort Fairfield; Donald B. Cragin, Waterville; Eugene B. Sanger, Bangor; Wallace E. Webber, Lewiston; George H. Coombs, Waldoboro; Walter E. Tobie, Portland, and Walter N. Miner, Calais. Through the chairmanship of Health Commissioner Bristol the cancer control work of the committee will be directly identified with the state health department.

MICHIGAN

State Health Association Organized.—Health officers of the state met in Lansing, January 7, and organized the Michigan Health Association, and elected Dr. Alvin H. Rockwell, Kalamazoo, president; C. Parnell, Ann Arbor, vice president, and Dr. William DeKleine, Flint, secretary.

New Health Magazine.—The first number of *Michigan Out-of-Doors* has just been issued by the Michigan Anti-Tuberculosis Association, taking the place of the bulletin of the association. It is published in the interests of the anti-tuberculosis campaign in the state.

Health Budget.—The tentative budget of the department of health for the year totals $2,480,000. This includes the sums needed for additions to a number of contagious disease units, rearrangements and changes in buildings of the Herman Keifer Group, new units required for treatment of pneumonia and venereal disease, $200,000 for extension of the hospital power plant, and the instalment of a new and better hospital laundry and administration offices, $150,000 for a smallpox hospital, $300,000 for a new maternity hospital, and $5,000 for a new department of health building.

Personal.—Dr. Albert T. Getchell, Mount Pleasant, was seriously injured in a collision between automobiles, January 5.——Dr. Garner M. Byington, Charlotte, has been placed in charge of the social disease section of the state board of health service.——Capt. Henry F. Vaughan, S. C., U. S. Army, has been recalled from military service, presumably to succeed Dr. James W. Inches as health commissioner of Detroit. Dr. Inches became police surgeon of the city, January 15.——Dr. Stephen C. Mason has been appointed health officer of Menominee, to succeed Dr. Robert G. Marriner, deceased.

MINNESOTA

Honor Veteran Members.—At the annual meeting of the Southern Minnesota Medical Association, held in Mankato, January 20, the exercises of the session were inaugurated by an honorary recognition by the association of two of its veteran members, Drs. John H. James, Mankato, and George F. Merritt, St. Peter.

Personal.—Dr. W. B. Wright, assistant superintendent of the St. Paul City and County Hospital, resigned, January 9. ——At the annual meeting of the Clay-Becker Tuberculosis Commission, held at Sand Beach Sanatorium, near Lake Park, January 9, Dr. Olaf J. Hagan, Moorhead, was reelected president, and Dr. Oesten K. Windberg, Lake Park, vice president.——Dr. Ignatius J. Murphy, St. Paul, for three years executive secretary of the Minnesota Public Health Association, has resigned to take up postgraduate work in Boston.——Dr. Ernest E. Wells, Stillwater, has succeeded Dr. Charles Van Cappellen, Stillwater, as county physician and poor commissioner of Washington County.

NEW JERSEY

Health Department Activities in Newark in 1918.—According to the monthly bulletin of the department of health of Newark the new activities of the department during 1918 included the establishment of a bureau of venereal diseases, a drug addict clinic in the city dispensary, extension of the free dental clinic in the dispensary, a school of instruction for department employees, supervision of cattle slaughtering by department veterinarians, a clean-up campaign, the registration of midwives, the muzzling of dogs and the control of a typhoid fever outbreak at the Boys' Home at Verona.

NEW YORK

Election.—At the annual meeting of the Canandaigua Society for Physicians and Surgeons, January 9, Dr. William A. Bing was elected president, Dr. Harry M. Smith, vice president, and Dr. George W. Gregg, secretary-treasurer.

Dr. Bernstein Exonerated.—The committee appointed by the state board of charities to investigate a complaint made by the Utica Trades Association on conditions said to exist in the Rome State Custodial Asylum has reported that "As no testimony to substantiate the general or specific charge of the complaint has been made, the committee is of the unanimous opinion that the charges are not sustained and Dr. Charles Bernstein of the Rome State Custodial Asylum has been completely exonerated."

Governor Would Abolish Drug Control Board.—Governor Smith has asked the legislature to immediately abolish the State Narcotic Drug Control Commission as an unnecessary bureau entailing unnecessary expense to the state. In a special message to the law makers the governor suggests that the work of the commission should be taken over by a bureau to be created in the state department of health. Governor Smith expresses himself as in sympathy with the purposes of the antinarcotic drug law and believes that the state should provide for the regulation and control of the sale of narcotic drugs.

School Diet Kitchens in the Influenza Epidemic.—In Syracuse, at the instigation of Dr. Frederick W. Sears, state sanitary supervisor of the district, the diet kitchens of many of the schools, which were not then in operation, were made use of to cook meals for families totally disabled during the recent influenza epidemic. The food was distributed by automobile. The work was financed by the Red Cross and was carried out through the cooperation of the supervisor, the Red Cross, the superintendent of the schools and the director of school diet kitchens. A total of 16,982 meals were served during the first week at a cost of $847.82, a per capita cost of only 4 cents. Later as the patients began to need more substantial food the cost increased.

Personal.—Dr. Francis E. Fronczak, major, M. C., U. S. Army, and formerly health commisioner of Buffalo, is expected to be temporary representative of Poland at the first peace conference at Versailles, January 18, pending the arrival of the Polish delegate proper.——Dr. Harry C. Hummell, Rochester, for several years health officer of Irondequoit, has resigned. The town board of Irondequoit gave a dinner, January 9, in his honor and presented him with a silver loving cup.——Dr. Paul D. Taddiken, Ogdensburg, has been appointed medical superintendent for the Buffalo State Hospital for the Insane, to succeed Dr. George W. Gorrill, deceased. Dr. Taddiken's place as superintendent of the St. Lawrence State Hospital has been filled by the returning of Dr. Richard H. Hutchings, Ogdensburg, who was superintendent until he resigned to enter the military service.——Dr. Frank Crowther, Schenectady, has been elected a member of the Congress in the Thirtieth Congressional District.——Dr. Walter B. Jennings, Norwich, has been offered a position in the State Hospital, Trenton, N. J.

Drastic Prohibition Bill.—A bill enforcing prohibition in New York state in ratification of the federal amendment has been prepared for introduction into the legislature. Very stringent regulations are laid down in connection with the sale of alcohol and wine by druggists. No sales will be made for medicinal purposes except on a physician's prescription and an affidavit would be required of all persons purchasing for mechanical, chemical or sacramental purposes.

A pharmacist's license to sell alcohol would be issued only to druggists who have never been convicted of illegal sale of liquor, whose stock of alcohol shall not represent more than 1 per cent. of the value of all the goods in his place of business and who himself is not addicted to the use of alcohol or drugs. The sale of toilet, culinary, medicinal, antiseptic and flavoring extracts and patent medicines, the manufacture of which requires the payment of a United States liquor dealer's tax would be prohibited. No one but a licensed druggist would be permitted to sell certain compounds and patent medicines named in the bill except on the prescription of a licensed physician. Physicians would be required to keep a record of all prescriptions issued by them for alcoholic compounds and the medical practitioners allowed to issue such prescriptions would first have to give bond of $2,000 for observing the provisions of the law and be licensed by the prohibition commissioner.

New York City

Personal.—Dr. Harold M. Hayes has returned from active service in France and has resumed his practice in this city.——Dr. Frederick W. Splint has been appointed superintendent of the Binghamton City Hospital.——Dr. Bruno S. Horowicz has been appointed assistant sanitary superintendent in the department of health.

United Hospital Fund.—At the annual meeting of the United Hospital Fund, which collects funds for distribution among forty hospitals of the city which give free treatment to the poor, the treasurer announced that the receipts for the fiscal year just ended were $183,778, a gain of 36 per cent. over the previous year. Attention is called to the fact that war conditions as well as the influenza epidemic have seriously increased the demands made on the hospitals, and that in order to meet these demands it will be necessary to raise $250,000 during the present year. Of 151,655 patients treated in the united hospitals last year 48 per cent. did not pay a cent.; 30 per cent. paid in part, and 22 per cent. were private patients. Dr. George E. Brewer, W. V. S., Thorne and James McVickar Breed were elected trustees of the fund.

Accuse Mayor of Bringing Politics Into Health Department.—The Central Federated Union accused Mayor Hylan of renewing his attempt to throw the department of health into politics. At a recent meeting of this organization resolutions were adopted protesting to Health Commissioner Dr. Royal S. Copeland against what was termed his "secret and surreptitious" removal of the division of industrial hygiene, of which Dr. Louis I. Harris was the director, from the bureau of preventable diseases, to his own office. The federated union in the resolutions adopted complains against the disturbance of the work of the division of industrial hygiene, "as constituting a danger, not only to workers, but to the community as a whole," and asks that a committee of five be appointed to take such action as may be necessary, jointly with other central bodies, to exert every effort to prevent this unfavorable interference with an official who has won the confidence and respect of all those interested in health protection of the public. Dr. Copeland declares that no powers will be taken from Dr. Harris, but that Dr. Harris's work has been very onerous aside from the work of the division of industrial hygiene and that he considered the work of this division so important that he wished to have it directly under his supervision. He asserts that Mayor Hylan has had nothing to do with the change. In reply to the complaint of the federated union that its representatives were not consulted by the health commissioner in making the change, Dr. Copeland states that there is no reason why he should consult with them as the work he has in view is work that has not been done before. He is planning to go into industrial establishments, examine the heating, lighting and ventilation, see that sanitary arrangements are satisfactory and investigate the conditions in the handling of food.

OHIO

Influenza at the Orphanage.—Every one of the 156 boys and girls at the orphanage at Fairmount had influenza during the epidemic, but all recovered. There has not been a death in the home from any cause for two and a half years. The institution was closed for three months to visitors during the epidemic.

Governor Recommends Health Organization Changes.—Governor Cox, in his recent inaugural address, recommended that the state be divided into sanitary districts with experienced full-time men in charge of the districts. The governor believed that with this arrangement it would have been easier to manage the epidemic of influenza. In this Dr. William H. Peters, health officer of Cincinnati, agrees. At present there are about 2,200 health officials in the state, many of whom are not physicians and know nothing of sanitation.

OKLAHOMA

Personal.—Dr. Fred S. Clinton, Tulsa, was elected a director of the Oklahoma State Historical Society at its meeting in Oklahoma City, January 14.

Hospital for Negroes.—Possession of the Williams Building, Tulsa, which is to be used as a hospital for colored people, was obtained, January 14, and the institution will be opened this week to receive patients.

New Officers.—At the annual meeting of the Grady County Medical Association, held at Chickasha, December 11, Dr. Martha J. Bledsoe was elected president; Dr. Udonna C. Boon, vice president; Dr. Joe C. Ambrister, secretary-treasurer, all of Chickasha.

Antituberculosis Society Needs Aid.—The Tulsa Anti-Tuberculosis Society is already handling forty-three cases of tuberculosis and its estimated expenses for the current year are not less than $13,000. It is, therefore, making plans to ask the state legislature for an appropriation of not less than $10,000 to help in the local situation in addition to financing the proposed sanatoriums to be built by the state.

SOUTH CAROLINA

Ward for Negroes at State Sanatorium.—The state board of health has decided to ask the legislature for a ward for negroes to be erected on the grounds of the South Carolina Sanatorium, Columbia. The sanatorium is under the charge of Dr. Ernest Cooper, Columbia, as resident superintendent, and the resident physician is Dr. Wilfred R. Claytor.

SOUTH DAKOTA

Smallpox at Huron.—Dr. Charles H. Hall, vice president of the board of health, announces that there are six persons in Huron ill with smallpox. All the cases are under quarantine and are mild in degree.

New Officers.—At the annual meeting of the Sioux Falls District Medical Society, held in Sioux Falls, January 7, Dr. John B. Eagan, Dell Rapids, was elected president; Dr. William E. Donahoe, Sioux Falls, vice president, and Dr. Samuel A. Keller, Sioux Falls, secretary-treasurer.

Personal.—Dr. Henry B. Noble, Howard, has retired from practice.——Dr. Andreas A. Wipf, Freeman, formerly a member of the state legislature and a practitioner for twenty-five years, has retired on account of ill health.——Dr. Louis Holtz has resigned as city health officer of Aberdeen and will devote his attention to private practice and to laboratory work.

PENNSYLVANIA

Personal.—Dr. Arthur M. Calvert, formerly of the Cincinnati Tuberculosis Sanatorium, was made superintendent of the Grand View Sanatorium, Oil City, Pa., January 1.——Dr. Clarence R. Phillips has been elected chairman of the mental clinic, Harrisburg, and the following physicians were elected members of the board of directors: Drs. Norman B. Shepler and Clarence R. Phillips.

New Officers.—The Physicians' Protective Association of Easton held its annual meeting, January 7, and elected the following officers: president, Dr. Oscar M. Richards; vice presidents, Drs. Rueben S. Raub and Joseph S. Cohen, and secretary-treasurer, Dr. W. Gilbert Tillman.——York County Medical Society at its annual meeting, January 2, elected the following officers: president, Dr. John Gilbert, York; vice presidents, Drs. G. Elmer Krout, Jacobus, and Gladfelter E. Spotz, York; secretary, Dr. Nathan C. Wallace, Dover, and treasurer, Dr. Charles W. Eisenhower, York.

Philadelphia

Personal—John Dean Elliotf, major, M. C., U. S. Army, is on his way home after nearly a year of overseas service.——Drs. Otto P. Borger and Samuel L. Immerman have been made assistant school medical inspectors by the director of the health department.

Hospital Lease Ready.—The lease of two wings of the Philadelphia General Hospital to the government for the care and treatment of wounded and sick soldiers, which was authorized by an ordinance that passed councils, January 17, was forwarded to Washington to receive the signature of Secretary Baker. The rental consideration is $1 a year

Medical Club Election.—The Medical Club of Philadelphia at its annual business meeting held at the Bellevue-Stratford, January 17, elected the following officers: Dr. G. Oram Ring, president; Drs. Barton Cooke Hirst and Henry Beates, vice presidents; Dr. William S. Wray, secretary; Dr. Lewis H. Adler, Jr., treasurer, and Dr. Edward E. Montgomery, governor.

TENNESSEE

Personal.—Dr. Newton F. Raines, Raines, was seriously injured in a collision between his automobile and an Illinois Central train, while driving over a grade crossing near his home.——Dr. Max J. Sterne, head of the health and sanitary department of Harriman, has resigned and has been succeeded by Dr. Joseph M. Ellenberger.

State Health Board Held Supreme.—By the provisions of an opinion rendered, December 23, to Dr. Olin West, executive officer of the state board of health, by State Attorney Frank M. Thompson the authority of the state board of health over the county and municipal health boards in the suppression of communicable diseases is supreme.

Hospital Items.—A building for tuberculosis patients is much needed at the Eastern Hospital for the Insane, Knoxville.——The Baird-Dulaney Hospital, Dyersburg, is planning extensive improvements, including the establishment of a school for nurses.——The new hospital at the Davidson County Jail was opened, December 14. The hospital will accommodate twelve patients and is thoroughly equipped.——Fire at the Lincoln Memorial Hospital, December 3, damaged a hospital ward of about fifteen beds and caused a loss of from $5,000 to $8,000. Fourteen patients in private rooms and two small wards were removed to the Knoxville General Hospital without casualty.——A new hospital is to be opened at Nashville by Dr. Rufus E. Fort and other local physicians on the site of the Nashville College for Young Women. The hospital will be operated on a 125 bed basis.

TEXAS

Meeting Postponed.—The semiannual meeting of the Northern Texas Medical Association, which was to have been held in Dallas in December, has been postponed for six months.

Personal.—Dr. Edwin C. Ferguson has resigned as health officer of Beaumont, his resignation to become effective, January 21.——Dr. William M. Trimble, Fort Worth, has been reappointed physician for Tarrant County.

Deficiency Appropriation for State Tuberculosis Colony.—As the result of a conference between the governor and Dr. Joseph B. McKnight, superintendent of the State Tuberculosis Colony, Carlsbad, December 23, a deficiency allowance of $20,000 was granted to complete two new dormitories of eighty beds at the institution. There is already a waiting list which will fill the dormitories as soon as they are completed.

New Officers.—At the annual meeting of the Dallas County Medical Society, December 26, Dr. David L. Bettison, Dallas, was elected president and Dr. Minnie L. Maffet and William W. Fowler, both of Dallas, were reelected vice president and secretary-treasurer, respectively.——At the annual meeting of the Tarrant County Medical Society, held in Fort Worth, December 20, Dr. John H. McLean was elected president; Dr. Edwin P. Hall, vice president; Dr. Robert W. Moore secretary, and Dr. Samuel A. Woodward, treasurer.

Health Commission Meet.—The first meeting of the recently created State Commission on Public Health was held in Dallas, December 5. The organizations represented are: the State Medical Association of Texas, State Council of State Medical Association of Texas, State Council of Defense, Committee on Sanitation and Medicine, Texas Town and City Planning Association, State Social Hygiene Association, Public Schools of Texas, Texas Public Health Association, League of Texas Municipalities, State Board of Health, International Health Board, United States Public Health Service and University of Texas, Extension Department.

GENERAL

National Health Tournament.—A "National Tournament in Health Knighthood" will be conducted for the schoolchildren of America, beginning Feb. 9, 1919. The tournament will cover fifteen consecutive weeks of the school year among classes of ungraded schools and the contest will be for credits on a "Record of Health Chores" according to the rules and conditions established, information concerning which may be had from the state antituberculosis associations or health associations of each state.

Personal.—Col. William N. Bispham, M. C., U. S. Army, is announced as the new commanding officer of U. S. General Hospital No. 28, Fort Sheridan, Ill., succeeding Dr. Theodore S. Proxmire, Lake Forest, resigned.——Brig.-Gen. Francis A. Winter, M. C., U. S. Army, has been assigned as commandant of the Army Medical School, Washington, D. C., relieving Col. Weston P. Chamberlain, M. C., U. S. Army, who has been assigned to duty in the office of the Surgeon-General.——Surg. George M. Converse, U. S. P. H. S., San Francisco, who has been in charge of the Portsmouth-Norfolk (Va.) County Health District, has sailed on a special mission to France.

New Publications on Cancer.—A new pamphlet on cancer for distribution to the medical profession has been prepared by a special committee appointed by the board of directors of the American Control of Cancer. The committee includes Drs. Robert B. Greenough, Boston, chairman; James Ewing, New York City, and Jonathan M. Wainwright, Scranton, Pa. The pamphlet will be published in cooperation with the American Medical Association, and is now in press. A new edition of the American Red Cross textbook on "Home Hygiene and Care of the Sick" has been issued. This book contains a chapter dealing with cancer, enumerating early signs of cancer and precursors of cancer, together with a warning to have such conditions given early and competent attention.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Hospital, Philadelphia, and United Hebrew Charities each $2,500 by the will of Walter A. Kuhn.

Germantown and Chestnut Hill Hospital, Philadelphia, each $1,000 by the will of Sarah R. Watson.

St. Vincent's Home, Philadelphia, and Maternity Hospital, each $11,000, and Philadelphia Home for Incurables, $4,000 by the will of Annie E. Sinnott.

Mt. Sinai Hospital and Mt. Sinai Training School for Nurses, New York City, each $10,000 by the will of Kalman Haas.

Columbus, Ohio, Society for the Prevention and Cure of Tuberculosis for a Children's Preventorium, $3,000 by Mrs. William G. Deshler, conditional on an equal amount being raised by the public.

National Association for the Study and Prevention of Tuberculosis, $1,000,000 donation from the American Red Cross.

Report on Antivenereal Campaign.—According to *Public Health Reports*, Jan. 3, 1919, all the states in the Union except Idaho, Michigan, Missouri, New Mexico, Pennsylvania, Tennessee and Utah, and the District of Columbia have complied with the provisions of the so-called Chamberlain-Kahn Act, which provides for a system of federal aid for antivenereal work in states meeting certain conditions. Several other states have signified their intention of cooperation in the near future. At the time of the report 125 clinics were being conducted in conjunction with state boards of health by the Division of Venereal Disease, United States Public Health Service, in which increasing numbers of cases were being treated each month, and additional clinics are demanded. In conjunction with the Red Cross twenty-five clinics are being conducted in extracantonment zones, with social follow-up work. Nurses especially trained and adapted for the work are needed. Five commissioned officers, forty-four acting assistant surgeons and three scientific assistants have been detailed to the various states as venereal disease control officers, and forty acting assistant surgeons have been on duty in the clinics in extracantonment zones. During the period of reconstruction it is expected that the work of venereal disease control will be broadened and intensified.

CANADA

Officers Wounded.—The following C. A. M. C. medical officers have recently been reported wounded: W. Hadden, Winnipeg; J. Burke, River Bourgeoise, N. S.; A. Warner, England; S. Cahille, Sydney, N. S.; J. A. Cooper, Souris, Man.; W. R. Copp, Blyth, Ont.; J. H. Daniel, Brantford, Ont.; J. Crowthers, Calgary; C. R. Deburgh, England; A. Millen, England.

Personal.—Capt. Donald C. Malcolm, M.D., St. John, N. B., and Capt. Finlay Munroe, C. A. M. C., Glengarry, Ont., have been awarded the Military Cross.——Dr. Albert G. Nicholls, professor of pathology and bacteriology, Dalhousie University, Halifax, who has been for three years fortress sanitary officer, in charge of the district laboratory of hygiene, has been appointed D.A.D.M.S. (Sanitation), M.D. No. 6, with rank as major.

University News.—The Medical Faculty of the University of Toronto had 255 students registered in the first year in medicine when it closed for the winter holidays.——Dalhousie University, Halifax, was closed for a month on account of influenza. The total entry into the faculty of medicine this session was 107.——Fifty new students were enrolled in the medical faculty of the Western University, London, Ont. The total attendance is about 100. The erection of a new medical school is contemplated.

Rewarded for Valor.—Among the members of the C. A. M. C., one has received the Victoria Cross; five have been made Companions of the Bath; sixteen, Companion of St. Michael and St. George; one, Knight Bachelor—Sir Andrew MacPhail, Montreal; one, Order of the British Empire (officer); two, Order of the British Empire (members); thirty, Distinguished Service Order; eighty-four, Military Cross; two, Bar to Military Cross; ninety, mentioned in dispatches; two, Croix de Commandeur; one, Croix de Officier; two, Croix de Chevalier; two, Croix de Guerre; one, Croix de Guerre (Belgium); one, Order of Saint Sava, Fifth Class, Serbia, Capt. Harry J. Shields, Toronto; Silver Medal for Military Valor, Italy, Capt. Howard H. Burnham, Toronto.

Public Health.—The Montreal Board of Health has created a special bureau of child hygiene. The energies of the new bureau will be devoted to reducing the infant mortality in that city which is about the highest in America.——A new medical bill is to come before the Ontario legislature at the coming session.——The Vancouver Medical Society is planning a state medical service. Medical supervision of the schools and the Workmen's Compensation Board will be coordinated with the new service.——The population of British Columbia is put down at 382,689, and 25,000 Indians. In the first six months of 1918 the deaths totaled 2,046; births, 4,940; marriages, 1,443. Tuberculosis was responsible for 236. Cancer showed an increase. In 1917 for the entire year cancer claimed 248, while in the first six months of 1918, the deaths were 144. The percentage of deaths from tuberculosis in the oriental population was 22.49.

GENERAL

Manpower Propaganda.—The United States Public Health Service has begun the work of sending out a series of pamphlets, folders, bulletins and leaflets prepared for the laity in the interest of personal and public hygiene, some of them having especial reference to the avoidance of venereal diseases. V. D. Bulletin 1, issued in cooperation with the Bureau of Education, Department of the Interior, bears the title "Keeping Fit," and treats of what is called the "four great handicaps"—defective eyesight, poor teeth, bad feet and venereal diseases. Other publications in the series are "When They Come Home," which has reference to venereal diseases, and "Venereal Disease, a Public Health Problem for Civilian Communities." This latter leaflet shows in graphic form that venereal diseases bear a relation to other communicable diseases of 102.3 to 29.4; also that venereal diseases among the troops bore a relationship of 5 before enlistment to 1 after enlistment, showing that the problem of venereal diseases is one of the civilian communities. A small pamphlet on "Manpower" treats of the sex question and venereal diseases.

FOREIGN

Hospital Opened at Archangel.—The American Red Cross announced, January 11, that it had established a base hospital of 100 beds at Archangel, Russia, and that eighty patients, almost all of them Americans, were under treatment in the institution.

Venereal Prophylaxis Urged by British Physicians.—In a letter to the London *Times* a number of physicians headed by Sir William Osler and including George Lenthal Cheatle, James Crichton-Browne, Bertrand Dawson, Bryan Donkin, David Ferrier, Rickman Godlee, Leonard Hill, F. W. Mott, G. Archdall Reid and James H. Sequeira, call for the adoption of measures for the prevention of venereal disease in the community following the discharge of soldiers from the Army. The final and the most important paragraph of the letter states:

> It has been abundantly proved during the war that venereal diseases can be controlled by the adoption of simple sanitary measures, the success of which is striking, and the materials for which can be obtained from any chemist. These measures should at once be made known and available, and organized instruction given in their application. This is the only effective way of meeting a dangerous situation—dangerous not only for our soldiers and sailors, but for the population at large. The danger of delay is very great.

Preventable Diseases in Spain.—Some recently published statistics are cited by the *Nuevo Mundo* of Madrid which show that during a recent month there were more deaths than births in nine leading cities of Spain, including Madrid. A serious epidemic of smallpox has been prevailing also at Ciudad Real, and the editorial comments on these facts saying, "Smallpox in the cities and the locust in the fields show the true stage of civilization which Spain has reached. With leprosy—which we also have in Spain and which seems to be increasing at an alarming rate—we have the same plagues and scourges as Morocco and Tartary. It would be absurd here to relate how Japan extinguished smallpox, exterminated it, banished it from the islands of Japan. It was a state campaign and it took five years. It would be absurd to relate either how the Yankees undertook the sanitation of Cuba and conquered yellow fever which has cost so many lives here in Spain. And yet many years have elapsed since the Spanish mandarins have been talking of a policy of sanitation."

CORRECTION

Minnesota News.—In The Journal, January 11, it was stated under "Minnesota News" that Dr. I. J. Murphy had located at Aitkin, Minn. We are informed by Dr. Murphy that he is at present taking postgraduate work in New York.

MEXICO LETTER

Mexico City, Jan. 12, 1919.

The Typhus Congress

January 14 will be the opening day of this scientific assembly for the purpose of studying typhus. It is to be held in the amphitheater of the Escuela Preparatoria, with Lic. J. N. Macias, the rector of the University, presiding. The president of the congress, Dr. José Terrés, will welcome the members, and Dr. T. G. Perrin will deliver an address. The general sessions will be held from the 15th to the 22d in the Escuela de Ingenieros.

Delegates have been appointed by the Academia de Medicina, the Departamento de Salubridad, the Facultad de Medicina and the governors of the different states of the Republic (11) and addresses will be presented and discussed bearing on the etiology, history, symptomatology, epidemiology, prophylaxis and treatment of tabardillo, or typhus, a disease which is endemic in this country and the exacerbations of which frequently cause a notable increase in the death rate. One of the points which it is expected will be debated with much variance of opinion is the question of the transmission of the disease by lice—as the sole or principal cause of the spread of the disease—as the prevalence of typhus among the well-to-do seems to be at least equal to its prevalence among persons habitually infested with lice, or at least certain clinicians claim to have observed this. The discussion of specific serotherapy, according to Nicolle and Blaizot, will also be one of the features of the meeting, as also the plan to found an institute for experimental research on Tabardillo.

Personal

Ing. Palavicini, who has recently returned from New York, has resumed charge of the daily paper, *El Universal*. He has written much on behalf of the Allies of the Entente, and in his propaganda he did not restrict himself to merely defending the justice of his cause, but proclaimed the urgent moral necessity for Mexico to line up with the forces defending right and justice in order to maintain its reputation as a liberal people. The *Universal* is to have a fortnightly section, to be entitled "Tribuna Medica" which will have the same character as the former Saturday "Medical Page."

Dr. Rafael Cabrera, physician and writer, has been appointed secretary of the Mexican legation in Italy.

At the request of the faculty of the University, Lic. A. Caso has been appointed director of the Escuela de Altos Estudios, of the University. Lic. Caso is a corresponding member of the Real Academia Española, member of the Society of Friends of France, and during the world conflict which has just come to an end, he defended with word and pen the ideals inspiring the nations leagued against Prussian autocracy. The Escuela de Altos Estudios includes in its courses, besides Greek, Latin and German, with French, English and Italian literature and other branches, ophthalmology, dermatology, gynecology, psychiatry, pediatrics, etc.

The Cold Wave

The weather recently has been intensely cold here, something to which we are not accustomed. The mercury registered 17.6 F. (8 below zero C.). So far as I have been able to learn, this drop in the temperature has not affected the morbidity but it is reported from San Luis that one person died from the cold there.

BUENOS AIRES LETTER

Buenos Aires, Dec. 7, 1918.

Influenza

The epidemic which started here October 20 rapidly declined in November, having lasted about twenty-five or thirty days. From 25 to 70 per cent. of the people in different districts were affected. The mortality was rather low, about 1,000, that is, averaging thirty deaths daily for a population of 1,600,000 inhabitants. The new dean of the Facultad de Medicina organized some scientific meetings for discussion of the epidemic; they were attended by students and the public in numbers but not so much by the professors and practitioners. Dr. Penna related that there were forty-nine deaths among the 404 cases in his charge, but he added that the pneumonia cases were mostly directed to his service. Of 132 cases with pulmonary complications, forty-eight terminated fatally. He called attention to a few rare cases with petechial spots. Dr. Llambias reported that the anatomic findings included parenchymatous lesions in various organs and general hemorrhagic phenomena in the serosas and in some of the organs. The microscope showed that the lesions were of the pneumonic type, but atypical. In some cases there seemed to be a lack of fibrin.

Dr. Julio Mendez presented some views which were evidently revolutionary but were not sustained by convincing proofs. He affirmed that the causal agent of influenza is the pneumococcus and that the streptococcus and the Pfeiffer bacillus are simple modifications of the pneumococcus. He advocated the use of a vaccine which he prepares, entitled haptinogeno neumo, the composition of which has not been made public.

A meeting was held at the Instituto Bacteriologico of the Departamento Nacional de Higiene, November 23, at which Dr. Kraus reported that he had found the Pfeiffer bacillus in the sputum in 62 per cent. of the cases of influenza. It was alone in about half the cases and associated in the others with the pneumococcus, streptococcus and parameningococcus. The Pfeiffer bacillus was found in the organs in seventeen of the twenty-seven who had died; it was in pure culture in five, and associated with other bacteria in the others. In the other ten cases he found only the streptococcus and pneumococcus.

LONDON LETTER

London, Jan. 1, 1919.

An Association of the Physicians of the English-Speaking Countries

During the war an enormous number of physicians from the English-speaking countries—America and the Dominions—have passed through and sojourned in England. The British profession and its medical societies have offered them every hospitality. At the house of the principal medical society—the Royal Society of Medicine—the medical officers of the Dominions, America and the Allies have been cordially invited to consider themselves at home and use the library and other rooms. Some hospitality has been shown to the visitors every day by offering them tea, coffee and cigarets between 4 and 6 in the afternoon. At all the military commands throughout the country, medical officers from overseas have been cordially invited to attend clinics, lectures and demonstrations, and in some cases arrangements have been made for systematic courses and elaborate syllabi issued. These facilities have been much appreciated by the visitors. Out of these meetings, which have been a source of pleasure both to hosts and to guests, has grown a movement for forming an association for cooperation in medicine of the English-speaking countries, but not limited to them. Sir Arbuthnot Lane presided over a meeting at the Royal Society of Medicine to further this object. Among those present were Major J. H. Means (United States), Lieutenant-Colonel Castellani (Italy) and Professor Weinberg (Paris). Sir St. Clair Thomson and Mr. J. Y. W. MacAlister (secretary of the Royal Society of Medicine), acting honorary secretaries appointed at a previous meeting, submitted their report. It had been urged that the opportunity presented by the coming together of physicians from America and all parts of the British Dominions should be utilized to form some permanent organization which would result in a closer union between the English-speaking peoples through the medium of the medical profession. A circular setting out these aims was sent to the chiefs of the medical forces of this country, of the Dominions, and of America, and cordial expressions of approval and promises of support were received. The Royal Society of Medicine has given a room for an office which may now be regarded as the headquarters of the association. All the principal London hospitals were communicated with, and in practically every case they cordially responded and invited overseas visitors to come to the hospitals and attend lectures and operations. In the entrance hall a special notice board is placed calling attention to what is going on. Sir St. Clair Thomson, in seconding the adoption of the report, urged that in addition to a bureau of information it was desirable to establish individual and personal cooperation, and that volunteers should offer to take personally conducted parties to hospitals, museums and other medical institutions. Such cooperation would be very effective in creating a permanent entente. A general committee was nominated, and Sir Arbuthnot Lane was appointed honorary treasurer, and Sir St. Clair Thomson, Mr. Douglas Harmer, and Mr. J. Y. W. MacAlister honorary secretaries (pro tempore).

Medical Demobilization

The demobilization of the civilian physicians serving as medical officers in the navy, the army and the air force will be arranged through the Ministry of National Service. Until the general demobilization of the forces begins, the number of medical officers to be demobilized must remain strictly limited; and in view of the serious shortage of physicians in many parts of the country, the officers to be released first must be those whose return to civil practice will maintain and strengthen the medical service of those areas. As soon as general demobilization begins, medical officers will be demobilized on a scheme of priority based on both public and personal grounds; and in order to enable every case to be fully considered, steps are being taken to obtain the necessary information from every serving medical officer. To expedite the release of medical officers who have been on service for a long period and are urgently required at home, the Minister of National Service has decided that newly qualified physicians and medical students who have been protected from recruiting in order to obtain their degree will, as they qualify be called up for service as medical officers, and will continue to serve in this capacity until their services are no longer required, owing to the approaching completion of demobilization, when they will in turn be demobilized.

The Central Medical War Committee has for some time past been considering the various ways in which physicians returning from the services may be assisted to reestablish themselves in civilian practice. A conference on this subject was held between members of the committee and representatives of several benevolent societies, such as the Officers' Families Fund, the National Relief Fund, the War Emergency Fund of the Royal Medical Benevolent Fund, the Professional Classes War Relief Fund, the Committee of Reference, and the Appointments Department of the Ministry of Labor. The object was to discuss the possibilities of giving financial aid (by loan or grant) in the resettlement of physicians, and of cooperation between the various funds. A letter was addressed by the Committee to the War Office, the Ministry of Pensions, the Ministry of National Service, and the Local Government Board suggesting that physicians returning from military service should be given preferential treatment in the large amount of medical work of a military or national character that will be available throughout the country. Some of the work will be new; some of it has been carried out during the past few years by civilian physicians. The committee is of opinion that the authorities concerned should as soon as possible make widely known their intention to give these posts to physicians returning from service whose military experience has familiarized them with the kind of work to be done. With regard to the duties that have been performed up to the present by civilian physicians, the committee holds that when these have been carried out by a rota of physicians, the returned physician should be placed on the rota immediately he applies, and work given to him should he desire it, if necessary by relieving civilian physicians. If accepted, these suggestions will go far to assist the returned physicians during the first few critical months after their release, and will in addition do much to convince them that during their absence they have not been forgotten.

Postgraduate Teaching After the War

The crimes committeed by the Central Powers during the war have by no means been merely the acts of governments but have been zealously carried out by their soldiers and applauded by their peoples. They have never been repudiated by any class, even by scientists of international reputation, and the medical profession has been guilty of shocking inhumanity to prisoners. Both in this country and in France, leading scientific men have stated that they cannot cooperate with men in enemy countries for some years, and the same feeling prevails in the medical profession. It is therefore likely that the position occupied by Berlin and Vienna as centers of postgraduate instruction will be lost. Professor Adami has expressed the view that Paris will probably become the chief center of postgraduate instruction in Europe, as the French were making every endeavor to achieve this. While in England no one will grudge our gallant allies any success, but on the contrary every one will rejoice in it, much dissatisfaction is felt that no organized attempt is being made to advance the claims of London. The fundamental difficulty is that, excepting ophthalmology and neurology, there is no centralization of medical teaching such as exists in the enemy capitals, and facilities are organized almost entirely for the teaching of students. The difficulty appears to be insuperable. London, it has been said, is not a city but a monster—a conglomeration of many districts equal to cities. As is characteristic of English institutions, the hospitals are the result of private effort and not of government organization. Each of the dozen great London general hospitals with teaching schools attached has grown up and is maintained by private beneficence. Each is a complete medical school devoted to the instruction of students, and is as independent of all others as if they were hundreds of miles away. Scattered through these medical schools are the men whose names are famous throughout the world, but nowhere are they brought to a focus. The foreign graduate who comes here interested in some specialty cannot find any central institution where he can follow all that has been done in that particular line. Even the special hospitals are multiple. There is no university in London devoted to medical teaching, such as centralizes the medical teaching of Edinburgh and has long given that city a leading position among the medical schools of the empire. Attempts have been made from time to time to organize postgraduate teaching in London, but with little success. The last attempt, the Polyclinic, did good service for a few years, but was always in financial difficulties. These were so accentuated by the war that it had to close its doors.

PARIS LETTER

Paris, Dec. 12, 1918.

Interallied Surgical Conference

The interallied surgical conference for the study of war wounds held its fifth session at the Ecole d'application de médecine et de pharmacie militaires at Val-de-Grâce, November 18-21. The subjects discussed were: anesthesia in war surgery; antigangrene serum therapy; treatment of projectile wounds of the hip joint, kidney and hand, as well as the immediate and remote results of the treatment of arteriovenous aneurysms.

TREATMENT OF PROJECTILE WOUNDS OF THE HIP JOINT

The usual treatment employed in wounds of joints is also indicated in cases of wounds of the hip joint. The prognosis is not as good in these cases, however, as in the case of other joints because of the depth of the articulation, which is unfavorable for early diagnosis, for operative intervention and for drainage in infected cases. Wounds of the joint without bone lesions, or with only slight bone lesions, recognized early, justify an ideal arthrotomy: excision of the track of the projectile, incision of the capsule, evacuation of the blood, removal of foreign bodies, curettage of the bone lesion, cleansing the wound and suture. A comminuted intracapsular fracture seen early may be treated by a resection through the neck, removing as little bone as possible. An extracapsular fracture, with fissures extending into the joint, should be treated like any other extracapsular fracture: removing only such fragments as should be removed, cleansing the wound carefully, with chemical disinfection or tamponade, and secondary suture. When there is suppuration with either an intra or extracapsular fracture, immediate resection of the articular end of the femur is indicated. The postoperative care, especially the position of the limb and its immobilization, is of very great importance. It is of advantage to have the patient walk as soon as possible with the assistance of various orthopedic apparatus. The results, so far as life are concerned, are good in the primary resections and the deferred secondary resections; they are much more uncertain in the early secondary intrafebrile resections. The functional results are in accord with the time of the resection and the amount of bone removed: in general, they are very good for the intracapsular resections, and less favorable in the transtrochanteric or subtrochanteric resections.

PROJECTILE WOUNDS OF THE KIDNEY

When the local signs, the general symptomatology and the roentgenoscopic examination point to some lesion of the kidney only, without involvement of any other organs, operation should not be performed in the following cases: (1) When the projectile has made merely a seton wound or remains enclosed and is of small size; (2) when hematuria is not abundant and lessens progressively each day after the injury; (3) in the absence of a large perirenal hematoma which is not discoverable by an intumescence in the lumbar region. In all other cases it is advisable to operate.

The indications for nephrectomy, partial or complete, are: menacing primary hemorrhage; repeated secondary hemorrhages; grave infections. At the time of operation, the conservation or removal of the kidney will depend on the state of the kidney parenchyma. Before resorting to nephrectomy, the state of the other kidney should be known as positively as possible.

When some other intra-abdominal organ is injured, a lateral or median laparotomy is performed, following the track of the projectile. Subsequent procedures will be dictated by the results of examination of the renal region. In cases of thoraco-abdominal wounds, the lung and kidney must be treated separately, profiting as much as possible from a single wound of entrance, closing the diaphragmatic wound carefully to isolate the two foci.

In cases of kidney wounds not only the local lesion must be considered, but also the necrosis which may follow in the territory supplied by the blood vessels in the region of the hilus and of the parenchyma. The function of an injured kidney which has been treated conservatively, tends to reestablish itself, provided that infection can either be prevented or checked.

PROJECTILE WOUNDS OF THE HAND

Wounds of the hand are treated in the same manner as all other war wounds. Conservative methods should be pushed to the furthermost limit. Immediate operations should, preferably, be economical operations, making for union by first intention, with surgical repair of tendons and nerves. A limited bone resection may be done to obtain a soft scar and a good position. The quality of the scar as well as the mobility of the tendons and of the joints are of more importance than complete conservation of the bony skeleton. During cicatrization, the wounded zone should be immobilized in a good position, but immediate motion, active and passive, of all sound parts, and the early mobilization of the injured part or region, are important. After cicatrization, it is, again, mobility that must be obtained. The lesions of the phalanges and phalangeal joints are treated in the same manner as are injuries of the larger bones and joints of the members, that is to say, by removal of bone fragments and primary suture or early secondary suture. In the case of the thumb, resection of the joint is preferable to amputation. Whenever there is present the possibility that a finger is destined to become completely stiff, without any chance for motion, amputation should be done. Resection of the head of the corresponding metacarpal is always indicated after disarticulation of the index or little finger. In cases of fracture of a metacarpal, total esquillectomy is indicated, preferably through the back of the hand. In carpal-metacarpal lesions, resection is generally limited to the affected bones. Division and loss of parts of tendons are treated in the usual manner, varying with the site and extent of the lesion. Adhesions following tendon surgery are the greatest obstacle to motion. Immediate and continuous motion will do much to avoid this complication. In cases of extensive injury of the metacarpal region, high amputation of the metacarpals is preferable to disarticulation at the wrist.

IMMEDIATE AND REMOTE RESULTS OF THE TREATMENT OF ARTERIO-VENOUS ANEURYSM

Arterio-venous aneurysms, except in rare instances, do not heal spontaneously. Surgical intervention is indicated because of the complications which may eventually develop later, especially in the legs. Operation should be delayed for at least two months, unless immediate intervention is demanded by rapid increase in size or aggravation of the functional disturbances. The ideal operation consists in separation of the two vessels and lateral suture of the connecting openings in each. When the opening in either vessel is larger than half of its circumference, and if the involvement of the vessel wall does not exceed 3 cm. in length, resection and end-to-end suture is the method of choice. When a conservative operation cannot be done, extirpation of the aneurysm, that is, the union of the two vessels, is the best method of treatment. If neither of these procedures can be carried out, then ligation of each vessel above and below the aneurysm, (four ligatures) is indicated.

Centralization of Reconstruction Work

The Office national des mutilés et réformés de la guerre, which was established in 1918 (The Journal, June 8, 1918, p. 1784), recently held its official meeting at the ministry of labor. M. Henry Chéron, president of the administrative committee, explained the work of the committee since its foundation, the organization itself, etc. Dr. Queuille presented a report on the results obtained by the schools for professional reeducation of the maimed, and on the reforms brought about and the formation of new centers.

The assembly discussed and voted the budget for 1919 in which were embodied the credits necessary for the constitution of departmental and local committees, for the maintenance of the schools of professional reeducation and the establishment of new schools, and funds to be advanced to the maimed and invalided, after training, for the purpose of enabling them to gain a foothold in their new field of activity.

Medical Students and Demobilization

Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire, has laid down the following rules for the demobilization of medical students: "We have never ceased to claim of the Etat-Major all those students possessing credits in physics, chemistry and natural sciences, although the commandant was unwilling to let us have any students except those who had several inscriptions of the doctorate, two, for example. Now that the armistice has been signed, the demands of the high command have lost much of their value and we hope to be able to secure in the near future all the students of the class of 1916 (22 years of age) and preceeding years who have the necessary credits in physics, chemistry and natural sciences and two inscriptions of the doctorate. Most of these men have already been sent to Bordeaux, Lyon and Paris to become *médecins auxiliaires*. They remain subject to their military obligations, but they will go on with their medical studies in these university centers. The signing of the armistice makes it possible to send a larger number of the students back to the cities, where are the faculties and the schools in which they were enrolled. In the morning they are required to care for the sick and wounded who are still under treatment in the military hospitals. In the afternoon they take up the practical work pertaining to their medical studies. It is desired that during the year 1919 they can complete in six months a whole year's work in medicine. These students will be assigned to this work in successive groups. The system will no doubt be in full operation by February 1. These measures will meet the medico-military needs which must be met until such time as all classes of the reserve are demobilized, and also are to the best interests of the medical corps."

Training School for Nurses for the Tuberculous Poor

A special subscription was opened in London for the Société de secours aux blessés militaires (one of the three societies forming the French Red Cross) for the purpose of enlarging one of its hospitals into a training school for nurses to care for the tuberculous poor, and to endow this establishment with all modern hygienic accessories. The sum of 450,000 francs has already been subscribed and handed over to the Lyons branch of the Société de secours aux blessés militaires.

Franco-American Friendship

The students of the University of Lyon recently tendered a reception in the large amphitheater of the medical faculty to the American medical students among the troops in the cantonments of that region. The highest local authorities were present in honor of the occasion—the military governor, the mayor, the rector and professors of the university and the consuls of the allied nations. Addresses were delivered by MM. Bernard, president of the Association générale des étudiants; Joubin, rector of the university, and Mayor Herriot, who rendered homage to the noble character of President Wilson, and invited the American students to come in numbers to the University of Lyon, where a most cordial welcome awaits them.

Personal

At a meeting held December 16, the Académie des Sciences elected Mr. David Bruce of London, England, a corresponding member of the section on medicine and surgery.

Deaths

George Grant Gere, San Francisco; Eclectic Medical Institute, Cincinnati, 1871; aged 70; a veteran of the Civil War; professor of anatomy from 1881 to 1886, and of surgery from 1886 to 1906, in the California Medical College; formerly president of state and vice president of national eclectic medical societies, and secretary of the state board of medical examiners; visiting surgeon to the San Francisco City and County Hospital, a member of the staff of the Balboa Hospital and supreme surgeon of the Royal Knights of America; died at his home, December 29, from lobar pneumonia.

Clyde Lorenzo Carey ⊕ Lieut., M. C., U. S. Army, Elmira, N. Y.; University of Buffalo N. Y., 1910; aged 34; president and formerly secretary of the Chemung County Medical Society; who was discharged from the Army, December 18; died at his home, January 6, from pneumonia. A special meeting of the Chemung County Medical Society and Elmira Academy of Medicine was held in the room of the latter organization, January 8, at which resolutions were adopted regarding the death of Dr. Carey.

Robert Lord Hull ⊕ Major, M. C., U. S. Army, Oklahoma City; Jefferson Medical College, 1902; aged 43; associate professor of orthopedic surgery in the University of Oklahoma, Norman and Oklahoma City; chief surgeon of the Emergency and St. Anthony hospitals, Oklahoma City; on duty as head of the orthopedic department at Letterman General Hospital, Presidio, San Francisco; died in that institution, January 5, from pneumonia following influenza.

Frank Wyman Lamb, Akiak, Alaska; Detroit Homeopathic College, 1908; aged 31; owner of a private hospital at Akiak; a member of the commission of surgeons named by the territorial government of Alaska, to combat influenza; for four years a member of the commission appointed by the board of education to aid in promoting health conditions among the children of Alaska; died at Old Hamilton, at the mouth of the Yukon River, December 23, from influenza.

John McMaster Ristine ⊕ Cedar Rapids, Iowa; Bellevue Hospital Medical College, 1876; aged 71; consulting surgeon to St. Luke's Hospital; a member of the American Association of Railway Surgeons; district surgeon to the Chicago and Northwestern, Rock Island and Illinois Central systems; one of the most prominent practitioners of central Iowa; died at his home, January 9, from heart disease.

Herbert Martin Howes ⊕ Capt., M. C., U. S. Army, Portland, Me.; Bowdoin Medical School, Brunswick and Portland, 1917; aged 28; an intern in the Maine General Hospital, Portland; and assistant professor of pathology in his alma mater; who was discharged from the Medical Corps of the Army, December 21; died in Brunswick, Me., January 5, from pneumonia following influenza.

Samuel Leo Oren ⊕ Lieut., M. C., U. S. Army, Lewistown, Ill.; Barnes Medical College, St. Louis, 1899; aged 39; a specialist on diseases of the eye, ear, nose and throat; who after a course of training at Fort Oglethorpe, Ga., was sent overseas; died in France, October 9, from nervous collapse presumably following ambulant typhoid fever.

Herbert Leer McNeil ⊕ Lieut., M. C., U. S. Army, Houston, Texas; Johns Hopkins University, Baltimore, 1911; aged 32; associate professor of medicine and clinical pathology in the University of Texas, Galveston; on duty with the American Expeditionary Forces, in Camp Hospital No. 30, France; died, November 3, from bronchopneumonia.

Charles Henry Weintz ⊕ Capt., M. C., U. S. Army, Cincinnati; Maimi Medical College, Cincinnati, 1909; aged 33; a specialist in diseases of the eye, ear, nose and throat; assistant chief of the nose and throat department of the base hospital, Camp Sherman, Chillicothe, Ohio; died at Camp Sherman, October 14, from pneumonia.

Louis Becker, Knoxville, Ill.; Northwestern University Medical School, Chicago, 1888; aged 54; a member of the Illinois State Medical Society; physician in charge of the Knox County Almshouse and Insane wards; and physician to St. Mary School and St. Albans Academy, Knoxville; died at his home, about January 5.

Carl Edward Holmberg ⊕ Lieut.-Col., M. C., U. S. Army, Whipple Barracks, Ariz.; Jefferson Medical College, 1908; aged 39; commanding officer of U. S. Army General Hospital No. 20, Whipple Barracks, Ariz.; who entered the Medical Corps of the Army, Sept. 1, 1909; died in that institution, January 1, from pneumonia.

⊕ Indicates "Fellow" of the American Medical Association.

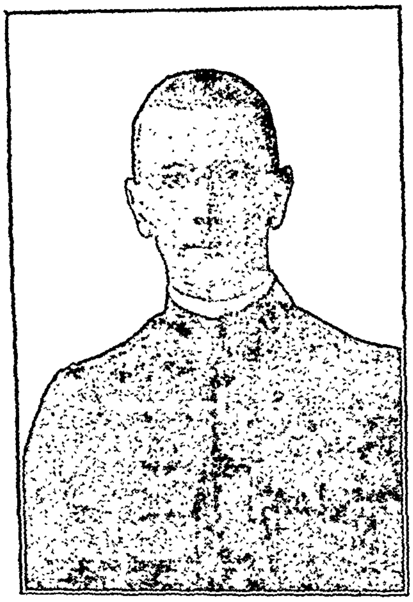
William A. Allen, Donnellson, Ill.; Missouri Medical College, St. Louis, 1878; aged 62; a member of the Illinois State Medical Society; one of the organizers and president of the State Bank of Donnellson; died in St. Francis' Hospital, Litchfield, Ill., January 5, from septicemia due to scratch of the right index finger.

Joseph Alphonse Furlong ⊕ **Lieut., M. C., U. S. Army,** Spring View, Neb.; St. Louis University, 1912; aged 29; on duty with the American Expeditionary Forces in France; while returning from leave spent in Ireland, was killed off Kingstown, Ireland, by the torpedoing of the steamship *Leinster*, October 10.

Frank Watson Jackson ⊕ New York City; College of Physicians and Surgeons in the City of New York, 1879; aged 63; a fellow of the New York Academy of Medicine; consulting physician to Bellevue and Roosevelt hospitals; professor of clinical medicine in his alma mater; died at his home, January 8.

George M. Clouse, Columbus, Ohio; Columbus (Ohio) Medical College, 1890; aged 57; president of the Practitioners' Medical Society; one of the founders of the Ohio State Pediatric Society; professor of diseases of children in the Ohio University; died at his home, January 5, from heart disease.

Jerome McKaig Leonard ⊕ **Lieut., M. C., U. S. Army,** Douglas, Ariz.; Hahnemann Medical College, Chicago, 1906; aged 34; on duty with the American Expeditionary Forces in France; is reported to have been killed in action in France, November 8.



Died in the Service
IN FRANCE
LIEUT. JEROME MCKAIG LEONARD,
M. C., U. S. ARMY, 1884-1918

Davis Neeper Richards ⊕ **Lieut., M. C., U. S. Army,** Germantown, Md.; Johns Hopkins University, Baltimore, 1915; aged 28; on duty with Evacuation Hospital No. 49, American Expeditionary Forces, since June, 1918; died at Camp Merritt, N. J., October 12, from bronchial pneumonia following influenza.

John Edwin Ray, Jr. ⊕ **Capt., M. C., U. S. Army,** Raleigh, N. C.; Cornell University, New York City, 1912; aged 31; a specialist in surgery; on duty with the American Expeditionary Forces in France; died, October 5, from wounds received in action in Bellicourt, September 22.

William Marks Lewis, Sharon, Pa.; College of Physicians and Surgeons, Baltimore, 1892; aged 57; a member of the Medical Society of the State of Pennsylvania; died, December 30, from heart disease on a Pennsylvania train between New Brighton and New Castle, Pa.

James Francis Gorman ⊕ **Lieut. (j. g.), U. S. N. R. F.,** Manchester, Conn.; Georgetown University, Washington, D. C., 1911; aged 34; who had been on duty at the Brooklyn Navy Yard; died at his home in Manchester, December 28, from pneumonia following influenza.

William D. Donne, North Scranton, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1888; aged 55; also a pharmacist; for three years outdoor physician for the poor; and until recently a member of the staff of the Farview Hospital; died at his home, January 8.

John Victor Bean ⊕ Fairfield, Iowa; Bellevue Hospital Medical College, 1868; aged 75; acting assistant surgeon, U. S. Army, in 1868 and 1869; lecturer on sanitary science in Parsons College, Fairfield; city health officer of Fairfield; died at his home, January 7.

Horace Melville Simmons ⊕ Baltimore; University of Maryland, Baltimore, 1881; aged 64; associate editor and part owner of the *Medical Review of Reviews;* founder and owner of the *Maryland Medical Journal;* died suddenly at Mountain Lake, N. J., January 5.

Joseph S. Herndon, Ashland, Ore.; Willamette University, Salem, Ore., 1874; aged 70; at one time a member of the Oregon State Medical Association; was run over and killed by a locomotive in the railroad yards at Roseburg, Ore., December 6.

Mitchell Mikkelsen ⊕ Wells, Minn.; College of Physicians and Surgeons, Keokuk, Ill., 1877; University of Illinois, Chicago, 1884; aged 68; a specialist in diseases of the eye, ear, nose and throat; died at his home, January 8, from pneumonia.

Stanley Lee Cassell ⊕ **Lieut., M. C., U. S. Army,** Sweet Grass, Mont.; University of Illinois, Chicago, 1914; aged 28; on duty with the American Expeditionary Forces in France; was killed, November 4, at Earle Fontaine, France, by shell explosion.

Joseph N. Eldred, Chesaning, Mich. (license, Michigan, years of practice, 1900); aged 81; a member of the Michigan State Medical Society; a practitioner for fifty-eight years; also a druggist; died at his home, December 20, from senile debility.

Lester Linwood Schwab ⊕ Benson, Ariz.; University College of Medicine, Richmond, Va., 1900; aged 40; who after sixteen years' practice in Roanoke, Va., went to the Southwest in 1916, in search of health; died at his home, December 28.

Benjamin Franklin Hawn, Youngstown, Ohio; Bellevue Hospital Medical College, 1873; aged 61; was killed in Youngstown, December 22, when his automobile was struck by a New York Central train at a grade crossing.

Elmer T. Bunten, Flemingsburg, Ky.; Kentucky School of Medicine, Louisville, 1907; aged 35; a member of the Kentucky State Medical Association; died at his home, November 9, from bronchial pneumonia following influenza.

Robert Eldridge Hearn ⊕ **Lieut., M. C., U. S. Army,** Mabank, Texas; University of Louisville, Ky., 1904; aged 39; on duty at the camp hospital at Camp Funston, Leon Springs, Texas; died, October 18, from bronchopneumonia.

Stewart Wiley Pryor ⊕ Chester, S. C.; Atlanta (Ga.) Medical College, 1887; aged 54; owner of the Pryor Hospital, Chester, and a well-known surgeon of upper South Carolina; died at his home, December 27, from pneumonia.

Elmer Ellsworth Lenhardt, Millersville, Pa.; Temple University, Philadelphia, 1909; aged 35; a member of the Medical Society of the State of Pennsylvania; died at his home, October 6, from pneumonia following influenza.

Ella T. Colby, Roads, Mo.; St. Louis Woman's Medical College, 1895; aged 51; a member of the Missouri State Medical Association; died in the Kansas City (Mo.) Research Hospital, November 3, from pernicious anemia.

Casper Joseph Middlekauff ⊕ **Lieut., M. C., U. S. Army,** Hayes, Kan.; Jefferson Medical College, 1917; aged 31; on duty with the American Expeditionary Forces in France; died in France, October 8, from pneumonia.

John Comas Matthews ⊕ Springfield, Mo.; Missouri Medical College, St. Louis, 1890; aged 53; local surgeon of the Missouri Pacific System; and formerly coroner of Green County; died at his home, December 7.

Peter Sylvester MacDonald ⊕ Chicago; Rush Medical College, 1864; aged 82; for several years professor of anatomy in the Northwestern University Woman's Medical School, Chicago; died at his home, January 20.

Robert L. Roll, Kirkmansville, Ky.; University of Louisville, Ky., 1893; aged 47; a member of the Kentucky State Medical Association; died in the Jennie Stuart Hospital, Hopkinsville, December 30, from arteritis.

Samuel Dana Henderson ⊕ **Lieut., M. C., U. S. Army,** Lansford, N. D.; Tulane University, New Orleans, 1916; aged 30; died in Camp Greenleaf, Fort Oglethorpe, Ga., October 19, from pneumonia following influenza.

Benjamin F. B[illegible]s, Altoona, Pa.; Hahnemann Medical C[illegible] 1883; aged 59; formerly president of t[illegible]meopathic Society; died in Colorado Springs, December 22, from asthma.

Clarence Frederick Rulmann, Minster, Ohio; Ohio State University, Columbus, 1915; aged 28; a member of the Ohio State Medical Association; died at his home, October 19, from pneumonia following influenza.

Burgess Allen Gibson ⊕ **Lieut., U. S. Army,** Washingtonville, Pa.; Jefferson Medical College, 1913; aged 30; is reported to have died in France, November 3, from the effects of wounds received in action.

George P. Smartt, Manor, Texas; Baylor University, Dallas, Texas, 1905; aged 38; a member of the State Medical Association of Texas; died in Austin, Texas, December 26, from pneumonia following influenza.

Thomas Hays, Deland, Fla.; Albany (N. Y.) Medical College, 1881; aged 90; for many years a practitioner of Clearfield Corners, N. Y.; died at the home of his son in Deland, December 27, from pneumonia.

Gerald J. Fitzgibbon ⊕ San Francisco; Cooper Medical College, San Francisco, 1877; aged 63; died in St. Francis' Hospital, San Francisco, January 10, from bronchial pneumonia following influenza.

Quincy A. Tipton, Cottonwood Point, Mo.; University of Louisville, Ky., 1877; aged 74; a member of the Missouri State Medical Association; died at his old home in Blytheville, Ark., November 11.

Arthur Robert Ohman, Chicago; University of Illinois, Chicago, 1913; aged 27; a member of the Illinois State Medical Society; died at his home, January 11, from pneumonia following influenza.

Laurence Joseph Simonton, Cumberland, Md.; George Washington University, Washington, D. C., 1909; aged 38; a specialist in urology; died at Centerville, Pa., October 10, from tuberculosis.

Oliver Austin Everett, Bolton, Mass.; Dartmouth Medical School, Hanover, N. H., 1885; aged 58; for twenty-three years postmaster of Bolton; died at his home, January 2, from influenza.

Albert Wilson Nash ⊕ North Haven, Me.; Bowdoin Medical School, Brunswick and Portland, Me., 1895; aged 47; died at his home, December 3, from empyema following pneumonia.

Nancy Maria Hill, Dubuque, Iowa; University of Michigan, Ann Arbor, 1874; aged 85; a volunteer nurse for three years during the Civil War; died in Finley Hospital, Dubuque, January 8.

Thomas M. Thayer, Herman, Minn.; New York Homeopathic Medical College, New York City, 1900; aged 42; died at his home, December 22, from pneumonia following influenza.

Clyde Everett Shedd ⊕ **Lieut., M. C., U. S. Army,** San Francisco; Oakland (Calif.) College of Medicine and Surgery, 1917; aged 25; was killed in action in France, October 16.

Julius Lewis Shryer ⊕ **Lieut., M. C., U. S. Army,** Durant, Iowa; Chicago College of Medicine and Surgery, 1917; aged 29; died from bronchial pneumonia in France, November 4.

Frank Philip Schneider, Rochester, N. Y.; Albany (N. Y.) Medical College, 1916; aged 28; died at a hospital in Rochester, December 31, from rheumatic endocarditis.

Robert H. Bradley ⊕ Marshall, Ill.; Northwestern University Medical School, Chicago, 1873; aged 74; died in his office at Marshall, January 4, from heart disease.

William W. Cunningham, Offerle, Kan.; University of Louisville, Ky., 1908; aged 37; died at Spearsville, Kan., December 2, from pneumonia following influenza.

Frederick W. Schneerer, Norwalk, Ohio; Eclectic Medical Institute, Cincinnati, 1875; aged 68; died at his home, about December 22, from pneumonia following influenza.

John A. Ferguson ⊕ Sault Ste. Marie, Mich.; Detroit College of Medicine and Surgery, 1903; aged 43; died at his home, October 4, from valvular heart disease.

Chauncey Macaulley Marstin, Braintree, Mass.; Howard University, Washington, D. C., 1880; aged 73; a veteran of the Civil War; died at his home, January 6.

Prince Edwin Luce, Brooks, Me. (license, Maine, Act of 1895); aged 60; died at the home of his sister in Clinton, Me., December 13, from cerebral hemorrhage.

Virginia Harley McKnight ⊕ Fair Haven, N. Y.; University of Michigan, Ann Arbor, 1873; aged 77; died at her home, December 28, from heart disease.

Madison Canaday, Eugene, Ore.; a practitioner for fifty years; aged 87; died at the home of his daughter in Crow, Ore., December 14, from senile debility.

Marie M. Simons Romine Perfect, Columbus, Ohio; Woman's Medical College of Cincinnati, 1894; aged 49; died at the home of her mother, January 2.

Antoinette K. Fellows, Chicago; Hering Medical College, Chicago, 1896; aged 73; died at her home, January 5.

Charles Joseph Turvey, Albuquerque, N. M.; North Carolina Medical College, Charlotte, 1910; aged 32; died in Albuquerque, recently, from tuberculosis.

Benjamin P. Wilson, Lake Butler, Fla.; Charity Hospital Medical College, New Orleans, 1876; aged 68; died at his home, December 17, from nephritis.

James Monroe Rainey, Chicago; Eclectic Medical Institute, Cincinnati, 1893; aged 51; died in a sleeping car between Omaha and Chicago, December 30.

Mathew Brinkerhoff DuBois, New York City; College of Physicians and Surgeons in the City of New York, 1868; aged 77; died at his home, December 29.

Elmer Roscoe Cravens, Linton, Ind.; Kentucky School of Medicine, Louisville, 1888; aged 56; died at his home, January 6, from cerebral hemorrhage.

Otho E. Francis, Dayton, Ohio; Kentucky School of Medicine, Louisville, 1878; aged 68; died in the Miami Valley Hospital, Dayton, December 31.

William E. Trueblood ⊕ Fairfield, Calif.; Physio-Medical College of Indiana, Indianapolis, 1897; aged 52; died in Oakland, Calif., December 29.

Jeremiah D. Phelan, Brooklyn; Long Island College Hospital, Brooklyn, 1883; aged 57; died in St. Peter's Hospital, Brooklyn, January 2.

Joseph Azel Knox, Whiteside, Mo.; Washington University, St. Louis, 1865; aged 79; died at his home, December 25, from senile debility.

Albert Claypool, Toledo, Ohio; New York Homeopathic Medical College, New York City, 1876; aged 72; died at his home, December 30.

Solomon P. Stoddard, Indianapolis; University of Heidelberg, Germany, 1863; aged 77; died at his home, December 22, from influenza.

Sidney Wells Johnson, Akron, Ohio (license, years of practice, 1897); aged 73; a veteran of the Civil War; died at his home, January 6.

Homer Curtis Potter ⊕ Des Moines, Iowa; Eclectic Medical Institute, Cincinnati, 1855; aged 84; died at his home, December 24.

Melville M. Moffitt, Washington, D. C.; Homeopathic Hospital College, Cleveland, 1882; aged 61; died at his home, December 29.

George Granville Monroe, Chicago; University of Michigan, Ann Arbor, 1878; aged 66; died at his home, January 8, from uremia.

William Orson Congdon ⊕ Cuba, N. Y.; University of Vermont, Burlington, 1896; aged 69; died at his home, October 18.

Theodore Kiss, Jr., Trenton, N. J.; University of Budapest, Hungary, 1894; died at his home, January 4, from cerebral hemorrhage.

Charles H. Brunk, Windsor, Ill.; Rush Medical College, 1865; aged 93; died at his home, January 4, from senile debility.

Edward Patrick Ryan, St. Paul; Rush Medical College, 1886; aged 54; died at his home, December 31, from heart disease.

Walter Howland Squires ⊕ Roulette, Pa.; Jefferson Medical College, 1899; died at his home, December 6.

Samuel H. Pettigrew, Springdale, Pa.; Jefferson Medical College, 1872; died at his home, January 1.

Robert R. Freeman, Tucson, Ariz.; Vanderbilt University, Nashville, Tenn., 1875; died recently.

Marriages

EDWARD FREDERICK MEISTER, Lieut., M. C., U. S. Army, Buffalo, to Miss Mabel C. Hope of Walthamstow, Essex, England, November 24.

GEORGE CLINTON ANDREWS, Tarrytown, N. Y., to Miss Ina Washington Rigsby, Army Nurse Corps, December 17.

FRANCIS R. ANTHONY, Maryville, Mo., to Miss Cora M. Price of Fort Smith, Ark., December 24.

IVAN PETROFF BALABANOFF, Tacoma, Wash., to Miss Edith Weller of Winona, Minn., January 1.

LUCIA KEMP, Bucyrus, Ohio, to Mr. L. C. Feighner, December 31.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MISBRANDED NOSTRUMS

How the Bureau of Chemistry Is Protecting the Public Against Fraudulent or Misleadingly Advertised "Patent Medicines"

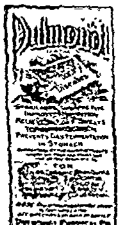
Royal Baby's Safety.—Shipped by Koloman Kovacs, trading as the Royal Mfg. Co., Dequesne, Pa. Analysis showed the product to contain, among other substances, approximately ⅛ grain morphin sulphate to each fluidounce, with alcohol, sugar, Rochelle salts and vegetable extractives, and indications of santonin. Falsely, fraudulently and misleadingly advertised. Fine, $50 and costs.—[*Notice of Judgment No. 5453.*]

Simpson's Cerebro-Spinal Nerve Compound.—Shipped by Chas. M. Simpson, trading as Dr. C. M. Simpson's Medical Institute, Cleveland, Ohio. Analysis showed the product to consist principally of alcohol, bromid, ammonium carbonate, and organic matter. Falsely and fraudulently advertised. Fine, $200 and costs. Defendant moved that the verdict and judgment be set aside and a new trial granted; motion overruled by the court. Defendant appealed case; Appellate Court affirmed the judgment of the lower court.—[*Notice of Judgment No. 5526.*]

Constitution Water.—Shipped by Stephen Demby, New York City. Analysis showed the product to consist essentially of a water-alcohol solution of iron acetate or chlorid, or both, glycerin, strychnin, and small amounts of alum and Epsom salt. Falsely and fraudulently advertised. Fine, $2.—[*Notice of Judgment No. 5530.*]

Tweed's Liniment.—Shipped by Wm. L. Davis, manager of Tweed Liniment Co., Chelsea, Mass. Analysis showed it was essentially a water-alcohol solution of chloroform, ammonia, turpentine, sassafras oil, and fixed oils. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5536.*]

Pulmonol.—Shipped by the Pulmonol Chemical Co., Brooklyn. Analysis showed the product to be essentially a glycerin-water solution of benzoate of soda, guaiacol sulphonate, and a little strychnin, colored with a coal-tar dye. Falsely and fraudulently advertised.[1] Fine, $25.—[*Notice of Judgment No. 5535.*]



Crown Skin Salve and Pile Cure.—Shipped by the Grace Medical Co., Des Moines, Iowa. Analysis showed the "Skin Salve" to be an ointment containing approximately 85 per cent. petrolatum, 7.6 per cent. mercuric oxid, 1.42 per cent. calomel, with indications of small quantities of camphor or menthol. Analysis of the "Pile Cure" showed it to consist of coco fat, tannic acid, atropin, alum, and talc. The "Salve" was falsely and misleadingly advertised, and the "Pile Cure" falsely and fraudulently advertised. Fine, $30 and costs.—[*Notice of Judgment No. 5591.*]

King of the World and Family Liniment.—Shipped by Gilbert L. Vrooman, Pierrepont Manor, N. Y. Analysis showed the product to contain over 84 per cent. of alcohol, 6.88 minims of tincture of opium to the ounce, with red pepper and safrol present. Falsely and fraudulently advertised. Fine, $2.—[*Notice of Judgment No. 5592.*]

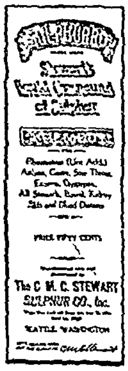
Ka-Ton-Ka.—Shipped by the Oregon Indian Medicine Co., Corry, Pa. Analysis showed the preparation to be essentially a mixture of alcohol, sugar, aloes and baking soda. Falsely and fraudulently advertised. Fine, $200 and costs.—[*Notice of Judgment No. 5537.*]

Greenhalgh Diphtheria Remedy.—Shipped by the Greenhalgh Remedy Co., Salt Lake City, Utah. Analysis showed it to be essentially a mixture of sulphur, borax, a trace of starch, plant tissue carrying berberin, iron, aluminum and potassium, as sulphates and nitrates, with charcoal and traces of manganese dioxid indicated. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5546.*]

Mountain Rose Tonic Tablets and Herbaline.—Shipped by the Springsteen Medicine Co., Cleveland. Analysis showed the "Tablets" to contain boric acid, tannin (or gallic acid), a zinc compound, unidentified alkaloidal material, vegetable extractive, sugar and acid-insoluble material, apparently talc. "Herbaline" was found to be essentially an ointment with a petrolatum base containing oil of eucalyptus, a thujone, containing oil such as tansy, and a small quantity of material insoluble in petroleum-ether but somewhat soluble in ether or chloroform. Both were falsely and fraudulently advertised. Fine, $100 and costs.—[*Notice of Judgment No. 5586.*]

Parmint.—Shipped by the International Laboratories, Binghamton, N. Y. Analyses of samples showed the stuff,[2] at various times, to contain from 9 to 15 per cent. of alcohol, about 3 per cent. volatile oil, from 14 to 33 grams of glycerin to each 100 c.c., and from 1 to 2 minims of chloroform to the ounce, also oil of peppermint, oil of turpentine, camphoraceous oil, and quinin. The product was colored with cochineal. Falsely and fraudulently advertised. Fine, $200.—[*Notice of Judgment No. 5593.*]

Sulphurro.—Shipped by the C. M. C. Stewart Sulphur Co. (Inc.), Seattle. Analysis showed the stuff[3] to contain about 4 grams of sulphur to each 100 c.c. and about 1½ grams of calcium to each 100 c.c. Falsely and fraudulently advertised. Fine, $150.—[*Notice of Judgment No. 5594.*]



"Liveon, The 90 Day Consumption Cure" and "Liveon Lung Discs."—Shipped by George H. Center, Du Quoin, Ill. Analysis showed the "90 Day Consumption Cure" to be a water solution containing sugar, plant material, emodin, tar and acetic acid. The "Lung Discs" contained essentially emodin, plant material, tar, starch and sugar. Both were falsely and fraudulently advertised. Fine, $50 and costs.—[*Notice of Judgment No. 5937.*]

White Beaver's Cough Cream and Wonder Worker.—Shipped by the Spence-McCord Drug Co., La Crosse, Wis. Analysis of the "Cough Cream" showed it to contain morphin, chloroform, creosote, ammonium chlorid, and methyl salicylate. Analysis of the "Wonder Worker" showed it to contain over 74 per cent. of alcohol, also chloroform, morphin, camphor, red pepper, oil of turpentine, and ammonia. Both were falsely and fraudulently advertised. Fine, $300.—[*Notice of Judgment No. 5599.*]

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[1] This product, sold as a cure for consumption, was analyzed by the chemical laboratory of the American Medical Association in 1913, and exposed in the Propaganda Department of THE JOURNAL of the A. M. A., Nov. 29, 1913. The matter is reprinted in the pamphlet, "Consumption Cures," published by the American Medical Association, price 20c.

[2] This product was briefly discussed in the Propaganda department of THE JOURNAL, Aug. 18, 1917, p. 582.

[3] Sulphurro was examined in the A. M. A. Chemical Laboratory six years ago. The article appeared in THE JOURNAL, March 9, 1912, and is reprinted in "Nostrums and Quackery," 2d edition.

Watkins' Vegetable Anodyne Liniment, Female Remedy, and Kidney Tablets.—Shipped by the J. R. Watkins Medical Co., Winona, Minn. Analysis showed the "Anodyne Liniment" to be essentially a water-alcohol solution of oleoresin capsicum, camphor, oil of sassafras, and opium. The "Female Remedy" was found to contain over 19 per cent. of alcohol and unidentified extractive matter bearing emodin. The "Kidney Tablets" appeared to contain buchu, oil of juniper, pichi, magnesium, calcium, potassium and carbonates and nitrates. All were falsely and fraudulently advertised. Fine, $30.—[*Notice of Judgment No. 5605.*]

Nature's Creation Co.'s Discovery.—Shipped by the Nature's Creation Co., Columbus, Ohio. Analysis showed the product to be a water-alcohol solution containing inorganic material, apparently combined as magnesium sulphate and potassium iodid, with some emodin-bearing vegetable matter. Accompanying the solution was a tablet containing iron, sulphates, aloes, and licorice. Falsely and fraudulently advertised.[4] Fine, $100 and costs. —[*Notice of Judgment No. 5610.*]

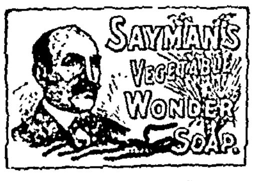
Radium Healing Balm.—Shipped by J. H. Frank Smokey, who traded as Uranium Mining Co., Denver. Analysis showed the stuff to be a soap with the odor of sassafras, and containing 9.3 per cent. of washing soda, 4.6 per cent. of baking soda, with 1.1 per cent. of sand, and 56.4 per cent of water. Falsely and fraudulently advertised. Fine, $10 and costs.—[*Notice of Judgment No. 5614.*]

Phuton Kidney Remedy.—Shipped by Mastin L. Williams, Arkansas City, Kan. Analysis showed the stuff to consist largely of water with about 3.5 per cent. alcohol and small quantities of plant extractive, ammonium chlorid, salicylic and tannic acids, and oils of sassafras and wintergreen. Falsely and fraudulently advertised. Fine, $5 and costs.—[*Notice of Judgment No. 5619.*]

Palmer's Skin Whitener.—Shipped by the Jacobs' Pharmacy Co., Atlanta, Ga. Falsely and fraudulently advertised. Ordered destroyed by the court.—[*Notice of Judgment No. 5598.*]

Byrnes Baby Relief.—Shipped by the Byrne Drug Co., Archbald, Pa. Falsely and fraudulently advertised. Product ordered destroyed; claimant to pay the cost of proceedings.—[*Notice of Judgment No. 5626.*]

Sayman's Healing Salve and Vegetable Wonder Soap.—Shipped by Thos. M. Sayman, St. Louis. Analysis showed the "Healing Salve" to contain chiefly petrolatum, zinc, boric acid, and camphor, with traces of a tarry oil. Analysis of the "Vegetable Wonder Soap" showed it to be a cold-process cocoanut oil soap. Both products falsely and fraudulently advertised. Fine, $40 and costs.—[*Notice of Judgment No. 5560.*]



Humphreys' Pile Ointment Witch Hazel Oil (Compound).—Shipped by Humphreys' Homeopathic Medicine Co., New York City. Analysis showed the preparation to be essentially a camphor ointment on a lard base. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5635.*]

Hill's Honey and Tar Compound.—Shipped by Laurence E. Cash, who traded as the New York Drug Concern, New York City. Analysis showed the product to consist essentially of water, alcohol (7.9 per cent.), sugars (56 per cent.), menthol, thymol, and a small amount of a substance similar to oil of tar. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5701.*]

"La Franco Combination Treatment" and "La Franco Vitalizer No. 200."—Shipped by Charles E. Luburg, who traded as La Franco Medical Co., Philadelphia. "La Franco Combination Treatment" included "Female Pills No. 2," "Blood and Emmenagogue Remedy," "Antiseptic Douche Powder," and "Tea Tablets." Analysis showed the "Female Pills No. 2" to consist essentially of aloes, emodin and green vitriol, with indications of ergotin and a trace of crude drug. The "Blood and Emmenagogue Remedy" was essentially iron, quinin, strychnin, and phosphate. The "Antiseptic Douche Powder" was essentially boric acid, borax, alum, carbolic acid and oil of peppermint. The "Tea Tablets" consisted essentially of milk sugar, oil of pennyroyal, iron and manganese oxids, and probably a small amount of caramel. The "Vitalizer No. 200" consisted essentially of iron, manganese, zinc, arsenic, phosphate, phosphid, and strychnin. All were falsely and fraudulently advertised. Fine, $75.—[*Notice of Judgment No. 5820.*]

Correspondence

"RULE AS TO PRIVILEGED COMMUNICATIONS APPLIED TO ROENTGENOLOGIST"

To the Editor:—In The Journal, Dec. 10, 1918, p. 2019, there is an abstract of a recent decision of the Idaho Supreme Court, wherein the law of privileged communications is applied to a roentgenologist, in a suit to recover damages for personal injury. This decision must have a far-reaching influence and should be brought to the notice of the entire medical profession. It points out that roentgenology should be applied only by licensed physicians, because the laws regarding privileged communications (where such laws exist) apply only to communications made to or information elicited by attorneys, clergymen or physicians. If the roentgen examinations, in the case cited, had been made by a layman, the supreme court would have reversed the decision of the trial court. In fact, the decision of the trial court would have been entirely different, in this particular phase of the case, if the roentgen examinations had been made by a layman. Besides the bearing this decision may have in the type of case cited, it might and could have a very important effect in a suit against a physician for malpractice, a subject well worth considering when roentgenologists or other specialists are brought into a case in consultation.

I. S. Trostler, M.D., Chicago.

"A REGISTRATION FEE FOR PHYSICIANS"

To the Editor:—In renewing my subscription, I wish to register my protest against the yearly registration of physicians with a fee of $2, as advocated by Mr. Shepardson (The Journal, Nov. 16, 1918, p. 1629). Three or four times that same article came to me, with increasing contempt and disgust on my part. Finally it found space in The Journal, and then came an editorial seemingly approving the scheme.

No doubt Mr. Shepardson believes that the medical profession would be much better under his immediate control, as he says that opposition will come from the more ignorant. I have no doubt that the kaiser thought the world would be better under his control, and the people were very ignorant for not seeing that. I am glad that I was one that was ready to sacrifice anything rather than bow to the kaiser, and I am glad to belong to that ignorant class from which Mr. Shepardson looks for opposition. Every physician and surgeon with whom I have talked belongs to the same class. Our county medical society has condemned the scheme. Some of these prominent men have a faculty for getting laws passed to suit them for which the benefit is not shown to every one. I remember with what contempt the man pushing the present birth registration law remarked that no physician would contend for a 25 cent fee on a paper on which he has spent two dollars' worth of work. Perhaps we would all despise a 25 cent fee if we held a state job; but now I find not only the fee gone but also the work; and expenses are greatly increased. For instead of sending in my birth reports to the county clerk at the end of the month, I have from six to twelve different men, any of whom may change office every year, to whom to make reports requiring at times telephone fees and extra postage. Is it any wonder that the officials are calling on their "registrars" for more complete reports?

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[4] The "Nature's Creation" humbug was exposed by the Propaganda department of The Journal March 5, 1910, and further articles appeared Feb. 4, 1911, and March 30, 1912. The matter is reprinted in the pamphlet, "Consumption Cures," published by the American Medical Association, price 20 cents.

During the recent epidemic I was getting only about two hours' rest out of the day; but enough official notices and instructions came to keep a man busy two or three hours more. I protest against this registration as only another step in making the physician a dummy in the hands of the powers. I have no use for the quack; but must the entire profession be under guard on account of a few renegades? Incidentally, a two dollar fee is attached which over the entire state would amount to from $10,000 to $15,000. "To a man up a tree" it looks as if the moral to the whole thing is that some one needs a soft job riding over the country to see if the physicians are following the latest "goose step."

BLAIR KELLY, M.D., Ferris, Ill.

To the Editor:—The paper of Mr. Francis W. Shepardson (THE JOURNAL, Nov. 16, 1918, p. 1629) touches on matters of vital importance to every public spirited citizen as much as to physicians. While a lamentable state exists in the presence of charlatans in the community, the significance of this is not likely to be fully appreciated.

To go to the root of the matter requires a delicate discrimination, because criticism as usually made strikes as hard at the man as it does at his professional attainments. This sort of criticism is not only unjust but is useless. Medicine, in the last analysis, is what the country as a whole makes it. It is the barometer of progress. Going even farther: in communities the kind of medical service received depends largely on demand. If the demand is for a high degree of professional attainment, this demand is usually met. It follows as a corollary that highly cultivated communities have as a rule highly skilled medical advisers, and the contrary is true, that medical skill is apt to be of a low order in communities where this demand is absent. May it not be at times very difficult to differentiate, judging by results, the charlatan from the licensed practitioner? One recalls Osler's quip that the worst thing about quackery is that it sometimes cures. Sick humanity is not discriminating as to means; are we very sure that professional incapacity is not the chief asset of the charlatan?

An opportunity has fallen to me which has brought close professional contact with numerous physicians, from all states and of all degrees of education. The resultant impression of the average skill, knowledge and judgment of the practitioner is not a source of happiness to me. Man that he usually is, with a heart in the right place, too often he knows little or nothing about medicine. When, in examining general practitioners with a view of ascertaining capability to care for ordinary sickness, it becomes necessary to exclude questions on the signs differentiating mitral stenosis from aortic regurgitation, and pneumonia from pleural effusion because too many have found these difficulties insurmountable, it is bad; but when one finds general practitioners of alleged experience who have never given diphtheria antitoxin, have never seen it given, have never made exploratory puncture of the chest with a needle for fluid, have never done a lumbar puncture nor seen one done, then one becomes convinced that these practitioners have not recognized the clinical pictures they undoubtedly have seen. That such men are inefficient and a menace is not by any means always their own fault. They attended poor schools, supposing them good. Their internships were, perhaps, under inefficient men, and they were taught nothing.

[These statements, of course, will not apply to the physicians who have been or are being graduated under the greatly improved conditions now prevailing in all but a few of the medical schools. Frequently published classifications enable the student to make a wiser choice, and the higher entrance requirements, better laboratory and clinical facilities and greatly improved methods of teaching insure the turning out of physicians who have had a much better medical training than formerly.—ED.]

Experience avails little unless there is some mode of correcting mistakes. If we fail to recognize these deplorable conditions we shall fail also in providing means for a better state of things. It is not enough that students be taught sound principles in schools; equally necessary is it that they have served as interns in hospitals under competent masters. Medical skill is like music: it is acquired more by tradition, master to pupil, than from literature. From the community point of view, the eight states which require an internship in an *inspected* and *approved* hospital as a requisite have the only rational system of licensing.

Mr. Shepardson says we need organization. We do. We need first a clear statement of the object to be attained by organization. That object is not primarily any position of the profession of medicine. The primary object is public health. Each step toward success will bring to medicine honors sufficient. We know that much disease is preventable, yet as a body we hardly have made ourselves felt in putting into operation principles demonstrated and accepted. We have a federal health service, most states have health boards, and a few are subdivided into districts; but there is little or no interrelationship between these boards, and between the isolated practitioner and these several agencies no relation at all. Yet these are, in fact, the great servants of the state health officer. From these he should receive help on the one hand in preventing disease and on the other in caring for disease (sanitary inspections, state and district laboratories, hospitals and sanatoriums). If the isolated physician is not kept in touch with medical progress through these agencies, his lot is hopeless, for he has neither time nor money for postgraduate study away from home.

NELLIS B. FOSTER, M.D., Fort Oglethorpe, Ga.
Lieutenant-Colonel, M. C., U. S. Army.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COCA-COLA

To the Editor:—Has "Coca-Cola" been analyzed? If so, I would especially like to know whether there is anything particularly injurious in it, and whether it is a habit-forming drink.

R. F. GRAHAM, M.D., Greeley, Colo.

ANSWER.—An analysis of Coca-Cola made by the federal chemists is published in a government bulletin known as Notice of Judgment No. 1455. This analysis declares the stuff to contain from 0.92 to 1.30 grains of caffein to the fluidounce. Various analyses have also been published in the advertising matter of the Coca-Cola Company. These all admit the presence of caffein in various amounts. It would seem that, in the interests of the public health, the indiscriminate sale to children and adults of an alkaloid like caffein in the enticing form of a "soft drink" should be deprecated. It is difficult to avoid the conclusion that the unrestricted use of Coca-Cola must be deleterious. It is probably true that a carefully graded dose of Coca-Cola contains no more caffein than the average cup of coffee, and if Coca-Cola as a drink were subject to the same limitations, so far as availability is concerned, there might be but little danger in its use. But people do not drink from five to fifteen, or twenty cups of coffee daily. That they do, in some cases, drink an amount of Coca-Cola equivalent in caffein content to that amount of coffee daily can, we believe, be substantiated. In THE JOURNAL, June 6, 1914, p. 1828, is published a communication from a Colorado physician describing a case of asthenopia in a caffein addict who was taking from three to six glasses of Coca-Cola daily in addition to two or three cups of strong coffee at mealtime.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.
Connecticut: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven
Illinois: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.
Indiana: Indianapolis, Feb. 26-28. Sec., Dr. W. T. Gott, 84 State Capitol Bldg., Indianapolis.
Kansas: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.
Massachusetts: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.
Missouri: St. Louis, Jan. 28-30. Sec., Dr. G. H. Jones, State House, Jefferson City.
Nebraska: Lincoln, Feb. 12. Sec., Dr. H. J. Lehnhoff, 514 First Natl. Bank Bldg., Lincoln.
New Hampshire: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.
New York: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.
Vermont: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.
Wyoming: Moorcroft, Feb. 12-14. Sec., Dr. H. E. McCollum, Laramie.

New York May and June Examinations

Mr. George M. Wiley, director, Examinations and Inspections Division, reports the written examinations held at Albany, Buffalo, New York and Syracuse, May 21-24 and June 25-28, 1918. The examinations covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 276 candidates examined, 220 passed and 48, including 1 osteopath, failed, 8 of the candidates who failed at the May examination having passed at the June examination. The following colleges were represented:

PASSED

College	Year Grad.	No. Licensed
Howard University	(1917)	1
Rush Medical College	(1917)	1
Bowdoin Medical School	(1917)	1
Johns Hopkins University	(1914) (1917, 2)	3
University of Maryland	(1916) (1918)	2
Harvard University	(1915)	1
Tufts College Medical School	(1912) (1913) (1917, 2)	4
University of Michigan Medical School	(1916)	1
Albany Medical College	(1917, 4) (1918, 7)	11
Columbia University	(1916, 3) (1917, 8) (1918, 22)	33
Cornell University	(1917, 5) (1918, 14)	19
Fordham University	(1917) (1918, 6)	7
Long Island College Hospital	(1917, 5) (1918, 25)	30
New York Homeopathic Medical College and Flower Hospital	(1916) (1917, 3) (1918, 11)	15
New York Med. College and Hospital for Women	(1918)	3
Syracuse University	(1913) (1917) (1918, 23)	25
University and Bellevue Hosp. Med. Coll.	(1916) (1918, 26)	27
University of Buffalo	(1918)	22
University of Oklahoma	(1916)	1
Jefferson Medical College	(1917) (1918)	2
Medico-Chirurgical College of Philadelphia	(1911)	1
University of Pennsylvania	(1908) (1911) (1917)	3
Vanderbilt University	(1916)	1
University of Texas	(1916)	1
University of Vermont	(1917) (1918)	2
Medical College of Virginia	(1917)	1
Queen's University	(1913)	1
Licentiate of the Royal College of Physicians, London, and Licentiate and Member of the Royal College of Surgeons, England	(1910)	1

FAILED

College	Year Grad.	No.
Atlanta Medical College	(1914)	1
College of Physicians and Surgeons, Chicago	(1902)	1
Illinois Medical College	(1898)	1
Kansas Medical College	(1903)	1
University of Louisville	(1902)	1
College of Physicians and Surgeons, Baltimore	(1914)	1
Boston University	(1915)	1
Tufts College Medical School	(1918)	2
Albany Medical College	(1914)	1
Columbia University	(1918)	2
Eclectic Med. Coll. of the City of N. Y.	(1910)	1
Fordham University	(1913) (1917) (1918)	3
Long Island College Hospital	(1918)	2
New York Homeopathic Medical College and Flower Hospital	(1912) (1916) (1918, 7)	9
Syracuse University	(1917)	1
University and Bellevue Hospital Medical College	(1918)	2
University of Buffalo	(1918)	3
Jefferson Medical College	(1899) (1904)	2
University of Pennsylvania	(1917)	1
Woman's Medical College of Pennsylvania	(1915) (1918)	2
Medical College of the State of S. C.	(1911)	1
Medical College of Virginia	(1915) (1917)	2
Queen's University	(1916) (1917)	2
McGill University	(1915)	1
University of Greigswald	(1895)	1
University of Palermo	(1905)	1
University of Turin	(1892)	1

Arizona October Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the oral and written examination held at Phoenix, Oct. 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 10 passed and 5 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgia College of Eclectic Medicine and Surgery	(1916)	75.2
University of Michigan Medical School	(1908)	86.5
Barnes Medical College	(1893)	88
Washington University	(1901)	95
Cornell University	(1905)	94
Syracuse University	(1887)	80
Jefferson Medical College	(1884)	88
University of Pennsylvania	(1900) 89.4; (1916)	89.3
Vanderbilt University	(1898)	77

FAILED

College	Year Grad.	Per Cent.
Southern Homeopathic Medical College and Hospital	(1903)	46.3
Detroit College of Medicine and Surgery	(1916)	57.8
Northwestern Medical College	(1894)	68
Washington University	(1912)*	19.5
Memphis Hospital Medical College	(1898)	64

* An official statement says that this candidate was neither a student nor a graduate of the school named.

New Mexico October Meeting

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that 6 candidates were licensed on credentials at the meeting held at Santa Fe, Oct. 14-15, 1918. The following colleges were represented:

LICENSED ON CREDENTIALS

College	Year Grad.	No. Licensed
College of Psysicians and Surgeons, Chicago	(1908)	1
University of Illinois	(1913)	1
St. Louis College of Physicians and Surgeons	(1883)	1
St. Louis University	(1913)	1
Washington University	(1901)	1
Medical College of Ohio	(1876)	1

Oklahoma October Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, Oct. 8-9, 1918. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Two candidates, 1 an osteopath, were examined, both of whom passed. Six candidates, including 1 osteopath, were licensed through reciprocity. Three candidates were granted reregistration licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Baylor University	(1917)	71

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1909)	Texas
St. Louis University	(1906)	Missouri
University of Pennsylvania	(1917)	Kansas
Dallas Medical College	(1904)	Texas
School of Medicine of Nuevo Leon, Mexico	(1891)	New Mexico

Kentucky December Examination

Dr. J. N. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 3-5, 1918. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. Two candidates, previously examined, are now recorded as having passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Louisville	(1912) 75, 90; (1917)	76
St. Louis College of Physicians and Surgeons	(1918)	80
Meharry Medical College	(1917) 70, 80; (1918)	78

FAILED

College	Year Grad.	Per Cent.
Meharry Medical College	(1918)	55

Book Notices

The Beginning of Science, Biologically and Psychologically Considered. By Edward J. Menge, M.A., Ph.D., M.Sc., Professor of Biology in the University of Dallas. Cloth. Price, $2 net. Pp. 256. Boston: Richard G. Badger, 1918.

In this booklet the author endeavors to explain the relationship between philosophy and laboratory science. Six of the chapters have appeared in the University of Dallas quarterly bulletins. The discussions are so advanced that they will appeal only to adults, or at least to those beyond high school age. As a whole, the book forms a brief review of the present status of biology and scientific philosophy. The author is careful to present both sides of the subjects he discusses. His chapter on theories of evolution is an excellent presentation of the developments in this field.

Surgery at a Casualty Clearing Station. By Cuthbert Wallace, C. M. G., F.R.C.S., Surgeon. St. Thomas' Hospital, and John Fraser, M. C., F.R.C.S.E., Assistant Surgeon, Sick Children's Hospital, Edinburgh. Cloth. Price, 10 shillings, 6 pence. Pp. 320, with 63 illustrations. London: A. & C. Black, Ltd., 1918.

The great war has developed a new terminology. Probably few readers of The Journal have a clear idea exactly what a British casualty clearing station is. The military hospital has evidently followed the same line of development in the British army as in the American. Prior to the South African war, the British military hospital equipment consisted of the field hospital and the base hospital. The field hospital was a mobile unit attached directly to the division, going forward with the troops in the field, planned and equipped so as to be capable of quick erection and demolition, and of as rapid movement as the exigencies of the military situation might require. To it were brought the wounded from the regimental aid station and the ambulance dressing station, either on foot or in ambulance or by the litter squad of the ambulance company. The field hospital contains no cots, beds for the wounded being made with blankets on top of straw, hay or leaves, or lacking these, rubber blankets on the ground. Only the imperatively necessary operations of emergency are done. Dressings are changed and adjusted, hemorrhages checked, splints applied, nourishment and stimulants administered and, as rapidly as possible, the wounded are evacuated toward the rear and the field hospital emptied and prepared for another influx of patients. When the zone of the advance is near the base of supplies, patients from the field hospital can be evacuated directly into the base hospital, which is a practically immobile unit; but when, as in Africa, and later on in France, the line of communication involves from 100 to 150 miles of rail and from 10 to 20 miles of motor transportation, the gap between the field hospital and the base hospital is too wide for practical purposes. Hence the evolution during the Boer war with the British, and during the Mexican border activities in our army, of what is known in this country as the evacuation hospital and in England as the casualty clearing station—an intermediate unit less mobile than the field hospital and more mobile than the base hospital; situated generally at the rail-head, receiving the evacuated wounded from two to half a dozen field hospitals; more completely equipped and capable of rendering more extended service than the field hospital, yet continually evacuating to the base hospital by hospital trains the sick and wounded whose condition is too serious to permit of their being returned to active duty in a short period. When the interval between the rail-head and the front lines is too small to make a field hospital necessary, the evacuation hospital becomes the first link in the system, and receives the wounded direct by ambulance from the advanced dressing stations. So recent has been the development of this military medical unit that comparatively no literature on the subject was in existence prior to the European war. This book embodies the results of several years' experience on the western front, and comprises the observations and methods of a large number of army surgeons. Chapters on organization, shock, general treatment, antiseptics, injuries of bones and joints, abdominal and chest wounds, injuries to the head, spine and nerves, hemorrhages, gas gangrene, amputations, transfusions, injuries to the eyes, and tetanus cover practically all the essential features of the work of the casualty clearing stations. The book is copiously illustrated with drawings and diagrams, mostly of recently devised apparatus and instruments. Being made up practically of new material, it has a freshness and interest not generally found in surgical textbooks. The military surgeon will be interested in the experiences of his professional brother on the western front, while the surgeon in civilian practice can get many valuable hints as to methods, the improving and devising of apparatus, etc.

Social Medicine, Medical Economics and Miscellany

The Black Demon, or Exorcising Smallpox

In a publication of the American Baptist Foreign Mission Society, Dr. Charles R. Manley, of the Clough Memorial Hospital, Ongole, South India, describes graphically the ceremonial of the natives of a community in driving out an epidemic of black smallpox. It should make good reading for the antivaccinationists. Dr. Manley's story is as follows:

The tom-toms beat all night and this morning the streets are fairly covered with chicken feathers. For black smallpox has taken the city and must be driven out. The priests have told the people to kill chickens and strew their feathers in the streets so they will catch the eye of Polerimah, the plague demon, and distracts her attention. The tom-toms throbbing in the air will either frighten her or please her so much that she will forget to jump down the throats of any careless mortals whom she might find with mouths opened in speaking, or with lips parted, or sleeping with uncovered faces. Yes! the goddess Polerimah is angry with the people.

Yesterday afternoon they made a big *tamasha*, or feast, in her honor. A few of us foreigners heard that it was to take place and went down to the bazaar to see what we could see.

In the very heart of the bazaar, our native servants told us, we should find Polerimah in all her glory. We wedged our way through the masses of men and women who filled the place and found ourselves at last before the little hut of green reeds that had been erected over the goddess. I must confess I was surprised and disappointed at what I saw when I peeped in. After all the fuss they had made and the huge pile of rice they had heaped up as an offering, I expected to see at least a life-sized lady demon. But instead I saw only a squat little figure, no more than a foot tall, made of black mud and covered with tinsel. She was soaked with lemon-colored water which dripped off her shoulders into a widely spreading puddle round her feet.

"Why so much wetness?" I asked with an amused smile.

"They must keep her cool," answered our guide with great dignity. "If she gets warm she gets mad. So they have built this temple of reeds to protect her from the sun, and every few minutes the priests pour saffron tinted water over her. Whatever happens she must be kept cool."

. . . .

In front of the "wickie-up" was a constantly increasing pile of cooked rice awaiting its sprinkling of life-blood to make it a food fit to satisfy the ravenous and blood-thirsty appetite of the goddess. Just beyond the rice-pile we could see a priest sitting on the ground bending over a smudge pot of burning incense. At that moment he turned to look at us and the terrible shape of his countenance made us cringe. His eyes were blood red and swollen and his sensuous mouth hung open. He was waiting for the demon to leap through the smoke and down his throat.

"Then," said our guide, "when he is demon-possessed, he will speak, and whatever he says the people will do it."

. . . .

We watched for a while the delegations of men and women coming from different parts of the town, bringing their offerings to Polerimah. With the blare of horns, the throb of tom-toms, the cries of the frantic wild-eyed dancers, band after band came in unvarying march around the little hut-temple, presenting their offerings and augmenting the rice pile. The priests meanwhile fought among themselves for the various titbits and dainties that the more zealous women had brought with their rice. The scene began to take on the aspects of a dog-fight as the priests, getting more excited, snarled and snatched delectable morsels from the women and even from one another. Hearing a commotion behind us we turned to see a band of priests coming up on the run, leading a buffalo bull. He was dyed with saffron, a wonderful canary yellow, and hung with garlands and with flowers. Behind him came a huge, savage black-faced fellow, holding aloft a great sickle-shaped knife in a hand that was white as snow.

"The bull is another offering," muttered my guide in my ear. "The big priest with the white hand must strike off his head with a single blow of the knife, and then the blood must be sprinkled all over the sacred rice pile before the goddess will accept her feast."

. . . .

By this time the sun had slid pretty well down toward the horizon, and it was evident that something more was about to happen. A sudden yell was followed by a mad surging of the crowd toward the temple, which they tore to pieces in almost less time than it takes to tell it. In another instant every one was waving a reed in the air.

"Now what will they do?" we asked.

"They are arranging to escort the goddess out of the town," said our guide. "They have done everything they could to appease her anger and make her happy; and now they are going to carry her out of town while she is still in a happy frame of mind, and throw her in the ocean."

The procession was formed. First came the priest carrying on his head a basket in which were the bull's entrails, crowned by his head, holding in his hideous, grinning mouth the bone of his front fore-leg. Behind him came the goddess, carried on the head of another priest. And as the throng proceeded down the street, people by the wayside wrung the necks of chickens and threw the headless bloody bodies over the people's heads toward the image. The horns blew, the tom-toms throbbed and the people yelled themselves hoarse, waving their reeds in the air. What is the priest screaming?

"Yell, brother, yell. Let confusion reign! Let not the terrible Polerimah suspect our fell designs, and fall upon us before we are safely rid of her!"

Following in the wake of the procession, I came up to a young mother who was hurrying along dragging a tiny child by the hand. The little girl was staggering, her bare body was a mass of scars, her eyes heavy and dull with the intoxication of the dread disease. The child mother cried out to Polerimah to have mercy. As her wails mingled with the shrieks of thousands the procession passed down the crooked, dusty road and out of sight.

Tonight, out there in the dark somewhere, many young mothers are sitting in black despair, because in spite of all their sacrifices to the demon, the lives of their babies stricken with the fearful plague are surely ebbing away.

Dried Milk as a Food for Infants

A report of great importance has been made to the Local Government Board by Dr. F. J. H. Coutts on dried milks with special reference to their use in infant feeding and issued as a government publication. Dr. Coutts says that the experience of the last twelve or fourteen years shows that dried milk is one of the most satisfactory forms of cow's milk for the feeding of infants. It has been largely employed in connection with infant welfare centers, particularly in Leicester and in Sheffield. A large proportion of babies take and digest dried milk very well; they thrive on it and develop well. Vomiting is less frequent with dried milk than with ordinary cow's milk. Fresh, clean, pure, raw cow's milk is a very good food for a baby when mother's milk is not available, but unfortunately the milk ordinarily sold in towns is often far from clean and contains large numbers of germs. Such milk, especially in summer, will not keep a day without becoming sour, and is apt to cause digestive troubles. Dried milk contains far fewer germs than ordinary town milk, and is less likely to contain the germs of infectious diseases. Also germs do not multiply in dried milk as they do in ordinary milk. Dried milk keeps well so long as it is kept dry. Only as much should be made up at a time as is required for one feed, and there need, therefore, be no waste. Pasteurized, sterilized or boiled cow's milk are useful foods if properly prepared, but they have disadvantages as compared with dried milk. Unsweetened full cream condensed milk is also useful for baby feeding, but when mixed with water in the proportions sometimes recommended it is too weak for satisfactory nourishment. Sweetened condensed milk is often used for baby feeding. Dried milk has the advantage, when made up with the proper proportion of water, of containing the essential food elements in a proportion more suitable than full cream sweetened condensed milk. The latter, if made up so as to give the right proportion of fat, has a very excessive amount of sugar. The baby usually becomes fat and flabby, and is liable to suffer from diseases, such as rickets. These risks attach to other infant foods containing excess of sugar. So-called "malted" milks, like sweetened condensed milks, contain much too low a proportion of fat as compared with sugar. They differ from sweetened condensed milk in the nature of the sugar. In condensed milk this is mainly sucrose; in malted milk it is largely maltose derived from the malted cereal. The ordinary patent infants' foods, containing large quantities of unaltered starch, are worse than sweetened condensed milk or malted milk. They are not fit for use for a baby under 7 months.

It is not surprising, therefore, that at official infant welfare clinics dried milk is becoming used to an increasing extent as, on the whole, the most convenient and most suitable food when babies cannot get breast milk. In feeding babies on dried milk, the full cream variety should alone be used. Commencing with 1 teaspoonful of dried milk in 3 tablespoonfuls of water in the first or second weeks of life, it can be rapidly increased to 1½ or 2 teaspoonfuls of dried milk in from 4 to 5 tablespoonfuls of water by the end of the second month, and so on to 5 teaspoonfuls of dried milk in 10 tablespoonfuls of water at the age of 5 or 6 months. Fears were at one time expressed that the use of dried milk might result in scurvy or rickets. Prolonged experience at infant welfare centers has refuted this; but as an extra precaution to avoid the possibility of scurvy, particularly if dried milk is to be used for a long time, a little fruit juice, such as orange or grape juice, may be given once or twice a week. Dried milk is also a valuable food for nursing mothers. In a very large number of towns dried milk for baby feeding is supplied from infant welfare centers, at which advice is also given as to the method of preparing and using the food.

Massage Versus Gymnastics in Rehabilitating the Crippled

Hitherto chief reliance has been placed on massage to set free stiff joints and limbs—a most valuable and helpful agent when rightly applied. Devoted women have given themselves up to the carrying on of this work, and most admirable results have often been obtained; but with every desire to appreciate their work, and with no desire to belittle its value, one has had forced on one's mind sundry factors that indicate limitations in its utility. The ordinary medical man who orders massage for a patient knows nothing from personal experience of the methods employed, or of the results obtained or obtainable. He hands the patient over to the "massage department" with smug satisfaction that he has done his duty in an up-to-date fashion, and troubles no more about the matter. The massage is carried out, as a rule, by a woman who knows nothing but massage and perhaps a little electricity, and her horizon being thus limited, she will continue massaging a case most assiduously and devotedly when all hopes of gaining improvement thereby have long ceased. Often one has seen hopelessly ankylosed joints being rubbed to regain movement, and limbs with divided and unsutured nerves being similarly treated. It is pathetic to see a little but devoted masseuse struggling with a strong man's stiff shoulder held by powerful muscles; to get the patient's weight to act on the arm would do more toward regaining movement in five minutes than five months of massage. To get good results the patient's own will must be brought into action. There are no particular inducements for the fighting man to get well more quickly than he can help; the allurements and comforts of the trenches are not such as to urge him to rapid convalescence, and he is quite ready to go on being rubbed or having passive movements of limbs at the hands of a masseuse, or in the grasp of a machine, as long as may be without himself putting out an ounce of effort to hasten the cure.—Col. A. Carless, Preface to Gymnastic Treatment for Joint and Muscle Disabilities.

Medicolegal

"Clairvoyant Doctor" an Illegal Practitioner

(People v. Kenyon (Mich.), 167 N. W. R. 997)

The Supreme Court of Michigan says that in this case, wherein the jury returned a verdict of guilty on a charge against the defendant of practicing medicine without a license, and which case was before the supreme court on exceptions before sentence, the court was unable to find error in the record which would warrant a reversal of the case, and therefore affirmed the conviction and directed the trial court to proceed to judgment. The prosecution showed that the defendant was not registered in Eaton, Calhoun or Barry counties as a physician, and also introduced the testimony of a number of witnesses to the effect that he had not merely furnished medicine, but had given treatments to a number of people in Battle Creek and elsewhere, the treatments consisting principally in rubbing on some sort of salve or oil, and occasionally giving a powder to take internally. Before giving a treatment he would "go into a trance," as the witnesses expressed it, claiming to be under the guidance and control of an Indian spirit, who would talk to him and tell him whether or not he could cure the patient and also what to do to effect the cure. In a number of instances it was shown that he stated positively that he could cure the patients. Those witnesses stated that they had gone to him for medicine or treatment because they had heard him spoken of highly by others whom he had treated; that they had seen no advertisement nor anything with the title "Doctor" used in connection with his name, though they were in the habit of calling him "Dr. Kenyon." During the cross-examination of the defendant, he identified a number of letters written by his wife for him during the years 1913 and 1914 to a Miss Carrie Holmes, which were signed "Dr. Levi Kenyon," the envelops of which bore the return card, "Dr. Levi Kenyon, Bellevue, Mich.," which letters were received in evidence, as was also a printed card which he identified, reading as follows:

> Clairvoyant Doctor. I diagnose Cases Anywhere in the United States free of Charge.
> Bell Phone 50 3-4
> R. F. D. No. 4
> Dr. Levi Kenyon,
> Bellevue, Michigan.

The defendant endeavored to show that during the period set forth in the information (July 1, 1915, to Dec. 8, 1916) he did not practice medicine and did not hold himself out at all to cure or alleviate human ailments, but simply sold herbs, roots and ointments prepared by himself which might, if used, be of benefit to afflicted human beings; that during the period in question he did not advertise or hold himself out to cure diseases, or in any way violate the section of the statute in question.

The supreme court holds that there was no error in permitting the information to stand without the exceptions of the statute concerning osteopaths, etc., being mentioned, the rule being well established in Michigan that in declaring on a statute where there is an exception in the enacting clause the pleader must negative the exception, but where there is no exception in the enacting clause, but an exemption in the proviso to the enacting clause or in a subsequent section of the act, it is a matter of defense, and must be shown by the defendant. The court also holds that, the defendant having testified, on direct examination, that he had never held himself out as being a physician or a surgeon, it was not error to allow cross-examination of the defendant and the introduction thereon of exhibits mentioned, the introduction of the letters as being on his credibility. Furthermore, in view of the statement made by the defendant while on the stand in his direct examination that he had never diagnosed a case of any person coming to him, and that he had never made a fixed charge for his remedies, the court does not think error was committed in allowing the witness Carrie Holmes to relate as part of the direct case circumstances that occurred at the time the letters to her were written.

Things Wanting to Sustain Action for Fees

(Paine v. Eckhardt et al. (Texas), 203 S. W. R. 459)

The Court of Civil Appeals of Texas reverses a judgment for $500 obtained by the plaintiffs in this action for debt brought by two practicing physicians, because the contention of defendant Paine must be sustained, that the judgment was contrary to and unauthorized by law, in that both the pleadings and the evidence failed to show that the plaintiffs, or either of them, had complied with the requirements of law, and especially with the provisions of Article 5736 of Vernon's Sayles' Civil Statutes, in that the pleadings failed to allege, and the evidence to show, that the plaintiffs, or either of them, had complied with the statute regulating the practice of medicine. The court holds that it was also fatal to the plaintiffs in this case that the pleadings and the evidence did not show any copartnership or other interest of the plaintiffs in the right to compensation of the other by which they could maintain or recover on a joint cause of action.

Color Blindness Not Loss of Sight

(Kane v. Brotherhood of Railroad Trainmen (Neb.), 168 N. W. R. 598.
Routt v. Brotherhood of Railroad Trainmen (Neb.),
168 N. W. R. 599)

The Supreme Court of Nebraska reverses in these two cases judgments obtained by the plaintiffs on account of color blindness as for a complete and permanent loss of sight. Moreover, for reasons stated in the Kane case, the court, in the Routt case, considered on a rehearing, overrules its former decision holding color blindness to be such loss of sight (101 Neb. 763, 165 N. W. R. 141).

The court now holds, as stated in the Kane case, that one who is color blind, but whose vision in other respects is unimpaired, has not suffered "complete and permanent loss of sight of both eyes." The fact that the plaintiff was a railroad trainman, and on account of color blindness was discharged from his employment, did not entitle him to recover the amount payable under a provision of a benefit certificate that a member of the organization in good standing, "who shall suffer the complete and permanent loss of sight of both eyes, . . . shall be considered totally and permanently disabled"; there being no provision that the term "totally disabled" should mean "totally disabled" from following railroad work.

The court says that the constitution of the defendant provided that a beneficiary member of the class to which the plaintiff belonged in good standing "who shall suffer the complete and permanent loss of sight of both eyes . . . shall be considered totally and permanently disabled, but not otherwise, and shall thereby be entitled to receive, on furnishing sufficient and satisfactory proofs of such total and permanent disability, the full amount of his beneficiary certificate." The majority opinion in the Routt case held, in substance, that the language of the contract was ambiguous, and that a member of the association who was unable longer to continue in train service, and was discharged therefrom, on account of color blindness, had suffered a complete and permanent loss of sight of both eyes, within the meaning of the contract. But the defendant, by its constitution, insured only against death and against certain specified disabilities. It made no provision to insure against the multitude of other classes of injuries which a member might sustain, and which might equally incapacitate him from carrying on his work, and was therefore not avocational insurance.

The evidence showed that the plaintiff's sight was perfect except that he was unable to distinguish certain colors. In the ordinary use and meaning of language, when one has suffered the complete and permanent loss of sight of both eyes, he is totally blind. It is true that ambiguous expressions in an insurance contract should be construed most strongly against the insurer, because it writes the contract; but where there is no ambiguity, and the plainest and clearest of ordinary language is used, courts are not warranted in striving to give distorted and unusual meanings to words in order to reach what is believed to be a benevolent result. Furthermore, the defendant's constitution specified that its provisions should be "interpreted and construed according to their most plain and obvious meaning." In order to bring the plaintiff within the insured class there must be a complete perversion of the usual and ordinary meaning of the language employed.

Society Proceedings

WESTERN SURGICAL ASSOCIATION

Twenty-Eighth Annual Meeting, held in Chicago, Dec. 20 and 21, 1918

The President, Dr. James F. Percy, Galesburg, Ill., in the Chair

Our Duty to the Industrial Army

Dr. R. W. Corwin, Pueblo, Colo.: Our duty as surgeons to the industrial army may be considered under two heads: (1) treatment after injury, and (2) treatment before injury—surgical prophylaxis. What are some of the prophylactic duties of the surgeon? In a broad sense to educate the employee: obtain the endorsement of the employer; urge national and state cooperation; make known the laws of eugenics, and insist that the breeding of man is as important as the breeding of cattle. Specifically, we should teach first aid, surgical hygiene and sanitation. We should teach the nature of wounds, the process of wound healing and of wound poisoning, the importance of early attention, and the relation of health to wounds. We should teach the relation of venereal diseases to wounds, and the importance of not bandaging tightly, of the care of the feet, of properly fitted shoes, and of position in lifting so as to prevent sacro-iliac injuries. The industrial army demands surgical protection as well as surgical treatment. Are we *not to protect* as well as save? Is not the surgeon best qualified to satisfy this demand? Has not the surgeon been too modest and permitted others to occupy his territory? Is it not time for the surgeon to assert his rights? Is not his duty to the industrial army plain? Now that peace is here, let us become instructors, not for war but for work.

DISCUSSION

Dr. D. S. Fairchild, Sr., Clinton, Iowa: I have examined about 16,000 men for army service and 5,000 for railroad service, and my conclusions are that we need to inquire first into the ways of living. If every industry could establish a plan of examining the men received into service and then ascertain how these men live, we would have something to go on in judging how to improve conditions. In our state 20 per cent. of the men rejected because of physical disability were under 30, and over that age more than 30 per cent. were rejected, or about the same as the men for railroad service. It was thought that on account of war conditions it might be necessary for our railroad people to employ men who would not be accepted under ordinary conditions, and I took the opportunity of visiting the homes where many of these men lived, the older men who would not be taken under ordinary conditions. I found the homes filthy and vice prevailing to a large extent. If we could start out with a plan of physical examination and follow this up by finding out how these people live, we should know what we must do in order to improve conditions.

Dr. John P. Lord, Omaha: We all realize the great amount of physical disability that has prevented men from being accepted in the military service, and these men are very anxious to have that physical disability removed in order that they might enter the service. The physical requirements are made in the various branches of the military service, and this has intensified the interest of people in their own physical conditions and they have tried to remedy them. Nurses ambitious to enter the nursing service would seek to have foot defects relieved so that they could get into service. If large corporations exact these things, and many of them do, the individuals are going to see to it that they are made fit for their jobs.

Dr. George N. Kreider, Springfield, Ill.: I have examined 800 medical men and have been very much surprised to find a large *proportion* handicapped and unable to get into the service on account of overweight. When I told them that it was possible to lose that weight and fit themselves for the service, at least 70 per cent. undertook to do it. Bad shoes are responsible for gastroptosis, heart trouble and many other conditions, and it is important for a surgeon to bear this in mind and lend his assistance to every effort to get better shoes.

Surgical Treatment of Exophthalmic and Thyreotoxic Goiter, with Special Reference to Bilateral Resection

Dr. Neil John Maclean, Winnipeg, Manitoba, Canada: The advantages of bilateral resection over unilateral lobectomy with partial lobectomy of the opposite lobe are: 1. There is a *minimum* of injury to the parathyroids. 2. There is absolute safety for the recurrent laryngeal nerve. 3. If for any reason further removal of the gland should be indicated, the one side could be removed completely with an assurance that some portion of gland remained. 4. Compensatory hypertrophy does not occur after double resection. 5. For cosmetic purposes, in the operation of lobectomy there is a well marked depression on the side from which the lobe has been removed, and on the other side the portion of gland left produces an undue prominence, while in bilateral resection the neck is symmetrical.

Purgation Before and After Abdominal Section

Dr. Henry T. Byford, Chicago: This paper will be published in full in The Journal.

DISCUSSION

Dr. Howard Hill, Kansas City, Mo.: No cathartic is necessary immediately before operation. Many people are chronically constipated and they should receive the proper treatment, but not just before operation. Generally speaking, a person whose bowels have been moving normally up to the time of operation does not need a cathartic at that time.

Dr. C. H. Wallace, St. Joseph, Mo.: I have not been giving cathartics before operation for several years, as my experience teaches me that it is rather harmful. If a patient comes with a history of regular bowel movements every day, he is not given a purgative but an enema the next morning. These patients suffer much less from postoperative vomiting than when purgatives are given before operation.

Dr. A. J. Ochsner, Chicago: I have made a practical study of the use of purgatives before operations for the last thirty-two years. I have tried all of them, from calomel to castor oil, and have come to the conclusion that the principle laid down by the essayist is the correct one. If you give cathartics, you must not give anything that will fill up the intestine again before the operation.

Dr. James F. Percy, Galesburg, Ill.: Some men give an enema about 4 o'clock in the morning, so that the lower bowel is cleaned out at that time. It is not a very agreeable experience.

Empyema

Dr. Emil G. Beck, Chicago: Stereoroentgenograms will corroborate the diagnosis of empyema very early. Aside from operation, repeated puncture and withdrawal of small quantities of fluid may cure empyema. Operation should not be performed in the very acute stages when the fluid is still serous. A few ounces of the fluid may be removed by puncture to relieve distressing symptoms; drainage is to be reserved when the secretion is distinctly purulent, and will furnish about 50 per cent. sediment in twenty-four hours.

Introduction of a catheter through a cannula at the lowest level posteriorly is most desirable. Withdrawal of 2 or 3 ounces daily allowing any air to enter the cavity is the best treatment. I advocate counterdrainage in the lowest part of the cavity anteriorly, passing a catheter through both openings. If resection of a rib is done, it should be the eighth or ninth rib posteriorly. This affords best drainage for the patient sitting, standing or lying down. Local anesthesia is advocated in all cases.

Irrigation with Carrel-Dakin solution is advised for the first few days to dissolve fibrinous adhesions. Further irrigation is discontinued if possible, and spontaneous dry drainage is allowed to follow. Injections of bismuth paste will close from 80 to 90 per cent. of the cases if employed properly. A mixture of oil and bismuth is dangerous because the bismuth subnitrate will settle in the most dependent cervices in a few hours from which it may be difficult to remove, and thus cause bismuth poisoning. The bismuth in a petrolatum mixture will precipitate and thus will not be dangerous.

For the chronic suppurative cases, with sinus or lung abscess or empyema, which have persisted in spite of treatment, the skin sliding flap operation is reserved. It is much easier and less dangerous and more effective than the Estländer and similar procedures.

Surgical Complications in One Thousand and Thirty Cases of Influenza

Dr. C. J. Rowan, Iowa City: These cases occurred in the student body of the University of Iowa during October, 1918. Barrack life of the Students' Army Training Corps was responsible for so many cases among a student population of slightly over 3,000, and permitted an early and close observation of the cases. Empyema was the most important surgical complication. It occurred only in the pneumonia cases, of which there were about 100, and was the cause of death in each of thirty-three fatal cases. Appendicitis was not a common complication. Many patients had the gastrointestinal form of influenza, and in quite a number of these there was finally pain, tenderness, and rigidity localized in the right lower quadrant. This was marked enough in some cases to lead to the diagnosis of acute appendicitis and to have indicated operation in ordinary times; but I felt that it was extremely important to avoid unnecessary operations in these influenza patients, that the involvement of the appendix was only a part of the enteritis of influenza; that recovery would take place unless secondary infection of the appendix occurred, and that secondary infection would be shown by the development of leukocytosis. Two of the patients did develop leukocytosis, and appendectomy was done at once in each case under gas and oxygen anesthesia. Whatever the primary cause of the influenza may be, the bacteria mostly concerned in the complications are pneumococci and streptococci.

Carcinoma of Small Intestine

Dr. E. S. Judd, Rochester, Minn.: In reviewing our records I found five cases of primary carcinoma of the duodenum. In one of these cases a gastro-enterostomy was done for an inoperable obstruction and relieved the patient for a time. At necropsy, several months later, pathologists reported carcinoma of the duodenum extending up to the pylorus. In the second case there was a carcinoma of the pyloric end of the stomach, and beginning just above the pylorus, independent of the pyloric tumor, was a malignant papilloma of considerable size. In the third case, the original tumor was presumably of the first portion of the duodenum, although the ampulla was obliterated, and from the extent of the trouble it was difficult to determine at what point it originated. The fourth case was quite similar to the third, and was an extensive malignancy. The fifth case was a large carcinoma originating in the first portion of the duodenum.

I have collected twenty-four instances from the records of the Mayo Clinic. During the same period there were 1,689 cases of carcinoma of the stomach, and 1,822 cases of carcinoma of the large intestine. We have had eleven cases of carcinoma of the jejunum, six cases of carcinoma of the ileum, and two cases of multiple carcinoma of the small intestine. One of these patients died from pulmonary embolism following operation, and the other died following operation. At the necropsy there was revealed a papillary cystadenoma of the jejunum, which was removed at operation, a papillary cystadenoma of the duodenum, cirrhosis of the liver, cholangeitis and chronic cholecystitis of the strawberry type with papilloma.

DISCUSSION

Dr. Arthur Dean Bevan, Chicago: We have had no case of primary carcinoma of the duodenum in which we have recognized the condition as such and operated. We have, however, had a number of cases of primary carcinoma of the small intestine, that is, in the upper jejunum. Carcinoma of the small intestine gives much the same picture as a pyloric obstruction, but some points are very different, such as the vomiting of a large amount of material that has accumulated in the stomach and entire jejunal loop, and attacks of partial obstruction resembling greatly the partial obstructions in the large intestine, which have been temporary but fairly acute. The diagnosis can be made with much more certainty by means of the roentgen ray than any other way.

As to therapy, we have given up the idea of making an end-to-end anastomosis in these cases. A lateral anastomosis is three or four times safer for the patient in these cases of carcinoma of the small bowel. Carcinoma of the small intestine, when early diagnosed, gives a favorable prognosis. We have three patients who have been well for a number of years after circular resection for carcinoma of the small intestine.

Are We Justified in Removing a Comparatively Healthy Gallbladder?

Dr. W. H. Magie, Duluth, Minn.: I am in favor of saving the gallbladder in at least a majority of the cases. I have never seen an empty or collapsed gallbladder. The fact that it is always filled with bile proves that it has much to do with keeping up and regulating the pressure in the bile ducts and liver. This theory is supported by the results of experiments on animals. When the gallbladder is removed in dogs, the remaining cystic duct dilates, as do the common and hepatic ducts. The dilatation of the cystic ducts takes on the appearance of Nature's making an effort to reproduce the gallbladder. This dilatation of the cystic duct has been observed in man after cholecystectomy. This effort of Nature to reproduce the gallbladder is evidence that the gallbladder not only has the function of storing bile, but also has a pressure regulation function on the biliary system. These facts should be taken into consideration when the question of cholecystectomy versus cholecystostomy is to be decided. I have seen the majority of patients with empyemic gallbladders get well and stay well after drainage. If such results can be obtained from empyemic gallbladders, we can expect a mildly diseased one to recover and become again a functionating organ.

Cholecystectomy has a much greater mortality than cholecystostomy. I have had no mortality in my cholecystostomies. Not more than 5 per cent. of patients have required reoperating, and in every case it was on account of overlooked stones or stricture of the cystic duct. Cholecystectomy should be resorted to in: (1) all cases of hydrops with stricture of the cystic duct; (2) many cases of acute gangrene or threatened gangrene of the gallbladder; (3) all cases complicated with embedded stones in the cystic duct with ulceration produced by contact with the embedded stone that when healed would probably cause stricture; (4) all very thick walled gallbladders due to fibrous or calcareous degeneration; (5) all cases of ulceration due to pressure of large stones, and (6) cancer of the gallbladder when the disease is limited to the gallbladder.

Factors That Determine the Relative Degree of Cure in Biliary Surgery

Dr. B. B. Davis, Omaha: The most frequent causes of lack of complete relief are: (1) impediments, as the result of strictures, torsions and lessened elasticity of the common or hepatic ducts to the free passages of the bile to the duodenum; (2) lack of elasticity and contractility of the gallbladder wall, resulting in stagnation of the bile in that viscus, and continuous infection, and a tendency for reinfections; (3) adhesions of the gallbladder to the pylorus, transverse colon, omentum and liver; (4) stricture or kink of the cystic duct. A large part of postoperative distress is due to gallbladder adhesions. The only effective way to avoid pericholecystic adhesions is to remove the gallbladder, and this is the most potent argument in favor of indiscriminate cholecystectomies. Surgeons have been compelled to resort to this measure because of the very unsatisfactory results following the more conservative operation. If any effective means could be found for preventing postoperative adhesions, most of the gallbladders now removed could be retained.

Diagnosis, Treatment and End-Results in Fracture of Skull

Dr. W. D. Haines, Cincinnati: Some of the most extensive and fatal brain and cord lesions have followed injury wherein no fracture was found in the ward, roentgen room or dead room. Skull fracture patients are almost without exception suffering from some degree of shock, ranging from slight depression to profound unconsciousness when admitted. Infinitely more good will be accomplished for the patient by employing measures to relieve shock than by immediate operation, the one exception being the presence of active hemorrhage, and even here there is room for argument. Linear fracture of the skull without displacement will require evidence other than that obtained by palpation in their recognition. In suspected cases wherein the roentgen ray is not available, exploration or lumbar puncture, preferably the latter, will aid in establishing the diagnosis. Percussion is of value in such instances, but evidence thus obtained should be confirmed. Shock and altered reflexes enter into the scheme of diagnosis and must be given careful consideration in determining the management of the patient. Pressure symptoms are the most insistent for relief. Their presence, extent and gravity may be very accurately determined by studying the fundus of the eye. Notwithstanding the desperate conditions embodied in fracture of the base of the skull, about 50 per cent. of the patients surviving the first forty-eight hours following receipt of the injury make a final recovery. The treatment should be directed with a view of relieving shock, stopping hemorrhage, preventing infection and controlling pressure.

Ischemic Myositis: Volkmann's Contracture

Dr. E. M. Sanders, Nashville, Tenn.: Three avenues are open to the surgeon for the treatment of this condition: 1. The method of Jones, in which gradual extension is applied to the fingers and wrist by a specially prepared splint, accompanied by vigorous active and passive motion, hot applications, and electricity. Mild cases can be managed satisfactorily by this method. I have used it with surprisingly good results in some cases, and in all the patients were greatly benefited. The value of this method of treatment depends largely on the promptness of its application, the cooperation of the patient, and the persistence with which it is carried out. 2. The more severe cases cannot be so treated with any degree of satisfaction, and should be subjected to tenoplasty, whereby elongation of the tendons of the affected muscles is accomplished. This should not be done earlier than three months from the establishment of the contracture, as it takes about this length of time for the maximum damage to be done. When the anterior capsule of the wrist joint is permanently contracted, the necessity of capsulotomy should not be overlooked. 3. In the more severe cases, and especially in children, resection of both bones of the forearm, as done by Mikulicz, is justified, and has given a fair percentage of good results in apparently hopeless cases. Before either of these operations is advised, one should remember the increased risk of infection because of the deficient nutrition of the parts, and the resulting adhesions between the tendons; and when the bones are dealt with, also the danger of nonunion and deformity. The prognosis should be guarded, as the end-results are apt to be far from ideal. As a rule, surgeons are in too great a hurry to reduce fractures and apply dressings, and this is especially true of fractures of the forearm and about the elbow in children.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

December, 1918, **1**, No. 12

Organization and Development of School of Ophthalmology. U. S. General Hospital, No. 14, Fort Oglethorpe, Ga., G. E. de Schweinitz.—p. 817.

Ophthalmoscopic Conditions Simulating Sarcoma of Choroid. H. Friedenwald.—p. 822.

Two Orbital Tumors. A. E. Davis.—p. 828.

Tumor of Orbit, with Extension to Frontal and Temporal Regions, Treated by Roentgen Rays. W. M. Sweet.—p. 830.

Transient Left Homonymous Hemianopsia. H. H. Tyson.—p. 831.

Alterations in Visual Fields Associated with Pellagra. F. P. Calhoun.—p. 834.

Practical Point in Technic of Corneal Tattooing. S. Theobald.—p. 847.

Peculiar Anomaly of Fundus Oculi. S. H. McKee.—p. 848.

Congenital Defect of Tarsus with Hypoplasia of Meibomian Glands. K. Hiwatari.—p. 849.

American Journal of Public Health, Boston

December, 1918, **8**, No. 12

Relation of Wages to Public Health. B. S. Warren.—p. 883.

*What is Relation of Wages to Public Health? A. E. Holder.—p. 888.

Sanitation of Explosives Industry. W. G. Hudson.—p. 894.

Civilian Tuberculosis Control Following War Conditions. D. B. Armstrong.—p. 897.

Improved Fermentation Tube Battery. W. F. Wells.—p. 904.

Collection of Birth Reports in Thinly Settled Communities. L. W. Feezer.—p. 906.

Family Statistics from Registration Sources. E. W. Kopf.—p. 910.

Comparative Study of Milk Plates By Four New York Laboratories. Preliminary Report. H. M. Hatfield.—p. 913.

Advertising as a Force in Public Health Education. J. Schevitz.—p. 916.

Rapid Method for Identification of Bacteria Fermenting Carbohydrates. J. Bronfenbrenner, and M. J. Schlesinger.—p. 922.

Relation of Wages to Public Health.—Also published in the *Southern Medical Journal* **11**:787, 1918.

Annals of Surgery, New York

December, 1918, **68**, No. 6

*Extirpation of Choroid Plexus of Lateral Ventricles in Communicating Hydrocephalus. W. E. Dandy.—p. 569.

Rib Cartilage Transplant for Saddle Back Noses. Report of Cases. P. G. Skillern, Jr.—p. 580.

Arteriomesenteric Ileus of Duodenojejunal Flexure. Report of Case. W. H. Fisher.—p. 582.

*Primary Retrograde Intussusception of Sigmoid Associated with Malignant Papilloma. D. C. Balfour.—p. 588.

Myositis Ossificans Progressiva. J. Rosenstirn.—p. 591.

*Dangers of Uterine Curettage. W. A. Lincoln.—p. 638.

Surgical Technic in Orthopedic Surgery. W. G. Elmer.—p. 646.

Extirpation of Choroid Plexus in Hydrocephalus.—Only the treatment of the communicating type of hydrocephalus is considered by Dandy. From the results of experiments on animals a new and scientific form of treatment is suggested, by which it is hoped to circumvent the cause. This treatment aims to restore the balance between fluid production and fluid absorption by reducing the production of cerebrospinal fluid to a level where it can be absorbed. By experiments on animals, the following facts have been established: (1) If the foramen of Monro is occluded, a unilateral hydrocephalus results; (2) but if the entire choroid plexus of this ventricle is removed at the time the foramen of Monro is occluded, this ventricle will be obliterated; (3) therefore, cerebrospinal fluid forms from the choroid plexus, and not from the ependyma. (4) Following total occlusion of the aqueduct of Sylvius the development of hydrocephalus is greatly retarded by the extirpation of the choroid plexus of both lateral ventricles. In this experiment the cerebrospinal fluid, which is produced proximal to the obstruction, can be derived only from the choroid plexus of the third ventricle. The conclusion drawn from these experiments is, that if all the choroid plexuses of the four ventricles could be removed, the formation of cerebrospinal fluid would cease and hydrocephalus could not result, or, if present, its development would cease. To cure obstructive hydrocephalus by removal of the choroid plexus, it would be necessary to remove all of the choroid plexuses because there is no absorption in the ventricles; but in communicating hydrocephalus, there is about one fifth of the normal absorption. It would not, therefore, be necessary to remove the entire amount of choroid plexus but to reduce its volume until the amount remaining would not produce cerebrospinal fluid faster than it could be absorbed. In other words, it would be necessary to remove about four fifths of the total amount of choroid plexus to reduce the fluid formation to the 8 to 10 per cent. absorption (one fifth of the normal) which occurs in communicating hydrocephalus. It is not feasible to remove the choroid plexus from the third ventricle and very difficult to extirpate flocculi in the fourth ventricle.

The choroid plexuses of the combined third and fourth ventricles equal about one fifth of the total amount in all the ventricles. The plexuses in the two lateral ventricles therefore comprise about four fifths of the total. A bilateral extirpation from the lateral ventricles should, therefore, reduce the formation of cerebrospinal fluid to a point where it can be absorbed by the restricted patent area of the subarachnoid space. Dandy describes the operation which he has done in four cases of hydrocephalus. All these patients survived the operation, although three died two to four weeks after the operation. One patient has survived a bilateral choroid plexectomy ten months, and shows no evidence that the disease is advancing. During and following the operation the reaction seems to vary directly with the grade of the disease.

Retrograde Intussusception of Sigmoid.—The case reported by Balfour is unique for the reasons that the condition was primary and had not developed as a complication to an intussusception of the usual variety, that it was not a terminal event in peritonitis or obstructive vomiting, and that the method of its recurrence could be observed at operation.

Dangers of Uterine Curettage.—Forty-three cases are cited by Lincoln to emphasize that any intra-uterine instrumentation is a dangerous procedure. The indications for such work practically narrow down to the removal of some products of conception or of bits of tissue for microscopic examination, and even here Lincoln says it is probably better to use the finger or placental forceps in the first instance, and it is somewhat doubtful whether the latter procedure is justifiable unless prepared for immediate removal. A curettage is a major operation not to be undertaken except under the very best conditions, and with every possible precaution, by a careful and skilful surgeon.

Archives of Neurology and Psychiatry, Chicago

Jan. 1, 1919, **1**, No. 1

Military History of American Neurological Association. T. H. Weisenburg.—p. 1.
*Treatment of War Neuroses. J. P. Stewart.—p. 14.
*War Neuroses. C. K. Russel.—p. 25.
*Histogenesis of Multiple Sclerosis. T. Klingman.—p. 39. To be continued.
*So-Called "Shell Shock": The Remedy. F. X. Dercum.—p. 65.
*Complete Division of Spinal Cord in Lower Dorsal Region. Case. W. F. Schaller.—p. 77.
Neuropsychiatry in Recruiting and Cantonment. M. S. Gregory.—p. 89.
Genera in Certain Great Groups or Orders of Mental Diseases. E. E. Southard.—p. 95.

Treatment of War Neuroses.—Stewart emphasizes the fact that treatment to be successful must be based on an accurate diagnosis. To arrive at a diagnosis a compete history is of great value. Systematic physical study is required. A hasty or slipshod examination is always bad. The personality of the physician is *an* all-important factor for successful treatment. The environment in which treatment of neurotic patients is to be carried out should be selected carefully. The patient should be withdrawn from the original surroundings under which his symptoms first developed, and placed under the care of a trained neurologic physician, preferably in a specially arranged hospital. Segregation of early cases, each patient having a special tent or room to himself, away from other patients, is of special value, if the patient is made to feel that he is *not* being imprisoned, but that he has been selected for special individual care for a limited period of time, and that meanwhile he is under constant observation. An atmosphere of cheerful, mutual confidence and optimism is essential. The confirmed neurotic, or "hospital-bird" who has wandered from one institution to another, gathering pearls of clinical symptomatology by the way, or, in other words, learning new tricks, is much more refractory to treatment than the recent patient who has not yet been examined or treated. The "hospital-bird" tends also to have a considerable superadded element of malingering, which helps him to play his part with added gusto, whether to bored or to sympathetic audiences. The return of the patient to his own home should, as a rule, be postponed until the cure is practically complete.

Symptoms which have been produced mainly by emotional shock or by suggestion are to be treated chiefly by psychical methods; those due to physical concussion or to exhaustion, chiefly by physical remedies, such as rest, massage, diet, electricity, etc. Those due to intoxications are the cases in which drugs are most likely to be of value in combating individual symptoms, such as tachycardia, insomnia, etc. Other cases may require to be transferred for treatment to a mental hospital. Hence, the importance, at the very outset, of the careful diagnosis and accurate classification of each patient. The particular treatment to be followed is outlined in detail. Speaking of hypnosis, Stewart says that hypnotism is rarely necessary. It is open to the objection that the phenomena of the hypnotic trance are themselves essentially hysterical in character, so that by hypnotizing a hysterical patient, one hysterical condition is replaced by another. Clinical experience has shown that waking suggestions are just as efficacious as those achieved by hypnosis, and their effects are more likely to be permanent.

War Neuroses.—During a period of six or seven months, when in charge of the neurologic ward of a general hospital at the base in France, Russel never saw the symptoms of shell shock in a wounded patient. Later in England, in an orthopedic hospital, he saw a few such cases, but they were always in men wounded rather slightly, not sufficient to have made it necessary to send the man back to England, or in patients who had recovered from a wound, and when there was a question of them returning to France again, the symptoms of shell shock developed. Shell shock was not found in German prisoners. Russel made a detailed study of some sixty cases of psychogenetic conditions picked at random and these showed that the average time in France for the whole of this series was two years and eight months, but excluding eight of these men who did spend a considerable time at the front before breaking down, the average time for the rest is reduced to one year and nine months. Nine had never been there at all. Evidently, the only common experience in all these cases was that they were exposed to danger or under the apprehension of being exposed, and the explanation of shell shock not being found in prisoners, either our own or those of our enemies, is that they were no longer exposed to such danger or were not under the apprehension of it. Russel urges that rational scientific methods should be used in the treatment of these psychogenetic cases.

Histogenesis of Multiple Sclerosis.—The basis of Klingman's investigation rests on four cases of multiple sclerosis. All of the patients were under observation for considerable periods of time and presented sufficient clinical evidence for a positive diagnosis. All of the tissue examined revealed, in general, a uniform histopathology, which is described in detail, but not in toto. The description will be completed in the second paper.

Shell Shock.—The application of the term "shock" to the functional nervous disorders observed in soldiers is greatly deprecated by Dercum. He says that the symptoms are due to hysteria and nothing but hysteria. According to Dercum the proper remedy for shell shock is the strict exclusion from the draft of material alike unserviceable, contaminating and demoralizing, and most expensive from the point of view of military economics. The hysterical person is one burdened with a defective organization, which is expressive of a biologic inferiority. That under the severe nervous overstrain of war, fatigue symptoms should present themselves and often in a pronounced degree, is no more than could have been expected; but this is a very different matter from shell shock.

Spinal Automatism After Spinal Cord Division.—Schaller reports the case of an adult man rendered totally paraplegic following fracture of the tenth dorsal spine and consequent direct injury to the cord. He was first seen one year and three months after injury. Examination disclosed exaggerated inferior tendon reflexes, accompanied by pathologic pyramidal tract signs, marked defense reactions, preserved muscule tonus and patellar clonus, total absence of voluntary motion in lower extremities; involuntary action of sphincters, decubitus ulcers over both hips; absolute anesthesia below the ninth and tenth dorsal radicular skin distribution. Because of the abnormal motor phenomena a compression of the cord was suspected, and a laminectomy performed. A complete division of the cord tissue proper was found. The ends of both cord fragments were trimmed off and preserved for future examination. An effort to suture the two ends of the spinal cord was made and found impossible. Reexamination, in nineteen days after operation, showed the same clinical signs as before operation. The case is cited as a striking example of spinal automatism after cord transection. It is noteworthy particularly because of the long duration of life (almost three years), persistence of the extensor toe reflex; exaggerated patellar and ankle jerks; patellar clonus; automatic bladder and rectum; preserved muscle tonus of normal or increased degree; presence of extensor as well as flexor responses in the same extremity and concomitant flexor and extensor responses of unequal intensity in the muscles of the same extremity.

Archives of Pediatrics, New York

November, 1918, **35**, No. 11

*Postdiphtheritic Paralysis and Spinal Fluid Findings. J. C. Regan.—p. 641.
*Relative Morbidity of Breast and Bottle Fed Infants. H. M. McClanahan.—p. 653.
Conditions in Throat Which Produce Dyspnea: Case of Retropharyngeal Abscess. A. J. Bell.—p. 661.
Purpura Abdominalis in Early Life. W. Weston.—p. 670.
*Prognosis in Tuberculous Meningitis. Report of a Recovery. F. van der Bogert.—p. 676.

Spinal Fluid in Postdiphtheritic Paralysis.—The findings in the spinal fluids in the six cases examined by Regan were normal in all instances with a slight exception in one patient where the albumin and globulin content were slightly increased. In no instances has there been any increase in cells, the cell count never exceeding a total of 7 per cm. Lymphocytes were always the predominant type of cell; indeed, in all but one case the only type present. The reduction of Fehling's solution was normal in all six fluids. Macroscopically, the fluids were clear and transparent. In most instances a slight hypertension seemed to exist as indicated by the increased rapidity of flow through the needle and by a positive Macewen sign. Providing the fluid was removed slowly and in small quantities no detrimental effects were observed. In fact, it was thought that at times slight improvement occurred in the condition of the patient following rachiocentesis. The spinal fluids were taken at various stages in the disease from a period shortly after paralysis developed in some cases, until just preceding or following death in others. It seemed rather doubtful, therefore, that a transient meningeal reaction could exist and yet leave no trace at the diverse periods of the disease in which punctures were performed. It is instructive to note that all the patients in the series were suffering from a grave and usually mortal type of paralysis, a type in which central involvement of the nervous system could most be expected.

Infant Morbidity.—Abstracted in The Journal, July 27, 1918, p. 307.

Prognosis in Tuberculous Meningitis.—Van der Bogert ascribes the recovery in his case to the performance of lumbar puncture.

Arkansas Medical Society Journal, Little Rock

December, 1918, **15**, No. 7

Incidence of Cases of Tetanus in Arkansas. J. C. Geiger.—p. 119.
Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. C. C. English.—p. 121.
Conservation of Vision. H. Moulton.—p. 126.

Boston Medical and Surgical Journal

Jan. 2, 1918, **180**, No. 1

*Chronic Vasoconstriction Spots and Their Significance. E. A. Tracy.—p. 1.
Active Tuberculosis. H. F. Gammons.—p. 8.
Clinical Chart of Renal Diseases. H. S. Jelalian.—p. 9.
Importance of Blood Pressure Observations in Surgical Prognosis. A. H. Miller.—p. 12.

Jan. 9, 1919, **180**, No. 2

Fracture of Neck of Femur. J. W. Sever.—p. 27.
*Experience of Massachusetts State Sanatoria for Tuberculosis During Recent Influenza Epidemic. J. B. Hawes.—p. 35.
*Complement Fixation in Tuberculosis. H. L. Barnes, W. Lake and H. S. Bernton.—p. 38.

Chronic Vasoconstriction Spots and Their Significance.—The chronic vasoconstriction spots observed in the forearms, hands and face, Tracy says, are found associated with nerve and brain lesions. One or more pigment spots are found nearby. Chronic vasoconstriction spots imply an increased flow of nerve stimuli over the vasoconstrictors involved in the production of the spot, a true hypertonia of the vasoconstrictors involved. The cause of the hypertonia of the vasoconstrictors involved in the chronic spots is probably mechanical, an enmeshment of the fibers in glial or hypertrophic connective tissue, and a consequent constant irritation of the neurones by the pressure of this tissue. The cause of the intensification of the spots observed at times, especially in idiopathic epilepsy, is probably a toxin in the blood stream, the product of a faulty metabolism, that further irritates the abnormal sympathetic neurones. Cases in which peripheral nerve and cord lesions are excluded, point to an organic brain lesion.

Effect of Influenza on Tuberculosis.—The testimony obtained by Hawes from the superintendents of state tuberculosis sanatoriums on this point is that an acute attack of influenza, usually associated with bronchopneumonia, of greater or less severity, has had remarkably little effect on the already existing tuberculous process as far as increasing its spread or its activity is concerned. Hawes' experience in his own work confirms these observations.

Complement Fixation in Tuberculosis.—The complement fixation test for tuberculosis was made by Barnes and Bernton on 279 sanatorium patients. Three hundred and ninety tests were made. The serum was examined within twenty-four hours in all but thirty cases; never later than forty-eight hours. Positive reactions occurred in only about 30 per cent. of progressive cases and in only 9 per cent. of negative sputum cases, hence the test is regarded by the authors as being of but slight value in this series of cases.

Colorado Medicine, Denver

December, 1918, **15**, No. 12

Infection-Exhaustion Psychoses. C. W. Thompson.—p. 297.
Pyorrhea Alveolaris. W. F. Drea.—p. 302.
Case of Laryngeal Obstruction Complicating Measles. H. L. Baum.—p. 309.

Journal of Orthopedic Surgery, Boston

January, 1919, **1**, No. 1

Orthopedic Outlook. R. B. Osgood.—p. 1.
*Infected Gun-Shot Injuries of Hip. L. Mayer.—p. 7.
Cleveland and Elyria Cripple Surveys. W. G. Stern.—p. 23.
Tarsal Torsion in Weight Bearing. W. J. Merrill.—p. 33.
Productive Occupational Therapy in Treatment of Disabilities of Extremities. E. G. Brackett.—p. 40.

Infected Gunshot Injuries of Hip.—Five cases are cited by Mayer to illustrate that in dealing with infected gunshot injuries of the large joints, the first consideration is the life of the patient. In deciding on the best course of treatment the operator should be governed by the principle of removing the pus focus as effectively as possible and with minimal shock to the patient. Simple drainage in the presence of a shattered, infected bone will not suffice. Disarticulation at the hip gives opportunity to clear away the septic focus, but the shock involved is very great. Excision is unquestionably the operation of choice.

The first case cited was one of complete recovery subsequent to extensive purulent coxitis, developing secondarily to an injury to the ramus of the ischium. A satisfactory range of voluntary motion resulted subsequently to the operation. The significant facts in the second case were (1) the prevention of para-articular abscesses by prompt surgical intervention, (2) the excellent functional result after extensive resection, including 1.5 cm. of the great trochanter, (3) the occurrence of a metastatic purulent arthritis of the ankle joint, as an indication of the pyemia likely to be associated with infected gunshot injuries of the hip. The third case differs from the first two in the mild character of the infection, resulting in a serious rather than a purulent coxitis. Resection was indicated because of the gradual extension of the inflammatory process to the acetabulum. Ankylosis resulted, probably due to the fact that comparatively little of the trochanter was removed, thus allowing it to impinge against the roughened surface of the acetabulum. In the fourth case a large retroperitoneal abscess was present at the time of the first operation, but not detected. This led to a second operation and the loss of a part of the shaft of the femur and a shortening of 10 cm.

The fifth case represents the type of arthritis in which, despite the high temperature, nothing was to be gained by an immediate excision of the joint. The septic symptoms were due to a severely infected communited fracture, not joint involvement. Therefore Mayer waited until the joint was walled off completely by granulations, before removing the necrotic head. The functional result, in this case, was poor, owing to the fact that the shaft of the femur was displaced upward and had no hold against the pelvis. It was impossible to overcome the difficulty by traction or by directing the femur toward the acetabulum; therefore, Mayer constructed an artificial acetabulum. The outer surface of the ilium was exposed just above the acetabular margin; an opening was made through the entire thickness of the bone. A section of the cortex of the tibia about 7 cm. long by 3 cm. wide fitted snugly into this hole. Roentgenogram two months later, showed an effective buttress which prevented upward displacement of the femur and enabled the patient to walk.

Medical Record, New York

Dec. 28, 1918, **94**, No. 26

Clinical Features of Recent Influenza Epidemic. C. E. Nammack. —p. 1103.
Arsenical Treatment of Syphilis. B. S. Dunn.—p. 1105.
Maternal Impressions and Feeble-Mindedness. W. S. Walsh.—p. 1113.
Parotitis as Complication of Influenza. D. I. Macht.—p. 1117.

Jan. 4, 1918, **95**, No. 1

*Importance of Adoption of Electrocardiography and Orthodiagraphy as Routine Measures in Management of Disorders of Heart. L. F. Bishop.—p. 1.
Etiology and Mechanism of "Prison Psychoses." L. E. Duval.—p. 6.
Possible Spread of Influenza Through the Bedbug. G. A. Friedman. —p. 14.
Streptococcus Mucosus Capsulatus Infection in Mastoid. J. M. Smith. —p. 18.
*Sawdust Surgical Handrub. F. Griffith.—p. 19.

Jan. 11, 1919, **95**, No. 2

Typhus Fever. H. T. M. K. Hahmet Bey.—p. 47.
Hydrotherapy in Treatment of Influenza. S. Baruch.—p. 52.
*Two Most Important Signs in Chronic Appendicitis. R. T. Morris. —p. 55.
Hearing and Its Regulation, Especially in Middle Age and Early Senescence. J. M. Taylor.—p. 56.
Brains and Milk. C. L. Redfield.—p. 58.
*Method for Using Dakin's Solution for Continuously Irrigating Mastoid Wound. A. Kahn.—p. 61.
Climatic Illusion in Treatment of Tuberculosis. H. Crutcher.—p. 62.

Electrocardiography and Orthodiagraphy in Management of Disorders of Heart.—Bishop says that every heart has an individuality of its own and every electrocardiograph is just as individual as a man's face or his signature or handwriting. If a patient comes back after a long period he can be identified by his electrocardiograph just as he could by his finger prints. As in the contraction of any other muscle, the heart muscle when it contracts becomes positive at one end and negative at the other end and thus produces an electric current, and while it is not practical to connect a wire to each muscle to demonstrate this, such a test is not necessary. The principle is similar to that of the duplex telegraph, which can carry ten messages over one wire and distribute each to the proper distributing station. In a similar way the different currents run through the heart and there is no diffculty in identifying them because they happen at different times and have certain definite characteristics.

Sawdust Surgical Handrub.—Griffith suggests the use of sawdust as a cleanser for the surgeons hands instead of the usual antiseptics. He claims that it is effective, lessens the skin damage and leaves the operator's hands safe. Sawdust does not clog washbasin wastepipes, for the reason that fine sawdust tends to separate the particles so that they do not lump in running water, and the lightness of the sediment further adapts it to be conveyed unrestricted. The use of sawdust from yellow pine, or fat pine as it is called, sometimes containing much oleoresinous substance of natural antiseptic nature when the turpentine has not been previously extracted from the tree, would prove its worth as a drier of the skin surfaces, especially to replace the chalk and talcum dusting powders where rubber gloves are to be donned. All sawdust for surgeons' use can readily and positively be sterilized by baking. Its adaptation for cleansing away excess oil and scurf and extraneous matter and attached germs from the skin of hands and arms of the surgical operator, aside from being a mere mechanical rub, is not an impractical suggestion.

Two Most Important Signs in Chronic Appendicitis.—The two signs referred to by Morris are: (1) When a chronic irritative appendicitis has registered its nerve impulses on certain sympathetic ganglia for a fairly long time, the muscular coat of the ascending colon becomes wearied. This wearied ascending colon with lax muscular coat remains distended with gas most of the time and gives what Morris calls the "cider barrel sign." Percussion on the left side of the patient's abdomen gives a note reminding one of the cider barrel in October (full) and percussion on the right side of the patient's abdomen gives a note suggestive of the cider barrel in March (empty). (2) The other sign, which, Morris says, is the most important one perhaps, consists in a hypersensitiveness at the site of the fused second and third synpathetic lumbar ganglia. Persistent nerve impulse from an irritated appendix appears to be registered selectively on the fused second and third ganglia causing hyperalgia of more or less permanent character relating to this ganglionic point. By pressing deeply on the abdomen about 1½ inches to the right of the navel and a trifle caudad, the patient feels pain when this particular ganglionic point is pressed on in cases of chronic appendicitis.

Method for Using Dakin's Solution for Continuously Irrigating Mastoid Wound.—Kahn's method is a sort of wound flushing by means of one tube placed in the upper angle of the wound and another tube placed in the lower angle. The irrigating fluid enters above and leaves below. Irrigation thus is continuous, and it can be interrupted at any time.

Military Surgeon, Washington

January, 1919, **44**, No. 1

Sanitation in Camps and Hospital on British Front in France. F. L. Pleadwell.—p. 1. To be continued.
*Acute Cerebrospinal Syphilis: Treatment. G. L. Qualls.—p. 30.
Activities of Public Health Service in Extra-Cantonment Zones. The Venereal Disease Problem. C. P. Knight.—p. 41.
Base Hospital Laboratory. L. H. Spooner.—p. 55.
Scabies at Embarkation Hospital, Camp Stuart, Newport News, Va. C. G. Lane.—p. 65.
Ascending Neuritis After Traumatism. O. F. Scott.—p. 68.

Acute Cerebrospinal Syphilis.—The cases in the series reported by Qualls in which intraspinal neo-arsphenamin medication was employed seem to have improved more rapidly and improvement was apparently more permanent than in those receiving arsphenamin only. He believes that the administration of mercury to its limit of tolerance in conjunction with intravenous and intraspinal medication of arsphenamin is a potent factor for good. By employment of the proper technic the amount of serum given intraspinally may be increased materially without *depression* or serious after effects, and it is believed with more rapid improvement. In one of the cases the onset and manifestations were of such an acute character that the case could have been easily mistaken for an acute meningitis due to the meningococcus had it not been for the labora[illegible]dings.

Missouri State Medical Association Journal, St. Louis

January, 1919, **16**, No. 1

*Rôle of Vasomotor Response in Cardiac and Renal Decompensation of Hypertensive Cardiovascular-Renal Disease. E. S. Smith, L. H. Fuson and H. H. Shackelford.—p. 1.
*Treatment of Epidemic Pneumonitis at Missouri State University. D. G. Stine.—p. 10.
Special Classes for Children with Defective Sight. An Unfulfilled Local Need. J. Green, Jr.—p. 12.
Crippled Child. Its Physical and Educational Needs. A. E. Horwitz.—p. 16.
Surgical Aspects of Pelvic vs. Abdominal Delivery. E. D. Twyman.—p. 18.

Vasomotor Response in Cardiac and Renal Diseases.—A classification of cardiovascular renal disease is offered by the authors as a working hypothesis. The cases are divided into: A. Those with vasomotor response retained and therefore with mobile arterial tree. B. Those with vasomotor response lost or refractory arterial tree. Group B is further divided into: Vasomotor response refractory temporarily or permanently through presence in blood of irremovable pressor substances. Vasomotor response permanently refractory from sclerosis or calcareous degeneration of arterial wall. Fifty-three cases were studied. The results lead the authors to claim that hypertension is never conservative for either heart or kidneys, but always destructive sooner or later to these organs. Hence an effort should always be made to reduce it; if successful the walls of the arterial tree and the heart and kidney compensation will be observed and their decompensation improved or relieved. If unsuccessful no harm will have been done to either heart or kidneys or arteries. Individuals at about middle life should report to their physician as they do to their dentist, so that hypertension may be detected and controlled before becoming refractory, and thereby preventing all the dire aftermath in heart and kidneys and blood vessels, tending toward a fatal termination. Even after hypertension has become apparently refractory, it may yet prove controllable later when not at first and even if permanently uncontrollable, if heart compensation has yet not been disturbed much can be done to conserve cardiac compensation, and even after its failure it may be for a time at least restored.

Treatment of Epidemic Pneumonitis.—The treatment given by Stine and others in 1,020 cases of pneumonia was as follows: Absolute rest in bed of all cases as even the mildest is a potential pneumonia. The wards were kept warm and patients protected from draughts. There was no attempt to control fever by hydrotherapeutic measures. On entering the patient was given Dover's powder, 2.5 to 5 grains, and quinin, 2.5 to 5 grains, repeated every four hours. Medication by mouth was often discontinued on account of nausea. On the appearance of signs of consolidation, that is, areas of bronchial breathing and dullness, camphor, 36 grains, in sterile olive oil was given intramuscularly every eight hours in men and every ten hours in women. In the severe types of pneumonia this dose was given as often as every four hours for four doses and then every eight hours. Some patients received as much as 800 grains in seven days. In the severer cases that did not respond to the camphor, a transfusion of citrated blood from convalescent patients has been done. The results of this procedure were somewhat doubtful. Normal horse serum seemed to give a beneficial result in about the same percentage of cases. Intravenous infusions of solutions of alkaline salts were without results. The results of the treatment of the infection with a vaccine made from killed diplostreptococci are as yet doubtful. The low mortality of 1.3 per cent., is explained as resulting from the early recognition of the extension of the pneumonitis in the alveolar tissue of the lungs, keeping the temperature of the wards at about 75 F., and to the use of large doses of camphor in those cases where pneumonia was suspected.

Nebraska State Medical Journal, Norfolk

December, 1918, **3**, No. 12

Hemolytic Jaundice with Report of Cases. W. O. [illegible]—p. 361.
Medical vs. Surgical Treatment of Gastric and [illegible] Ulcer. J. M. Mayhew.—p. 369.
Radical Operation for Treatment of Acute or Subacute Peritonsillar Abscess. H. B. Lemere.—p. 372.
Pyelography, Indications and Technic. C. Emerson.—p. 377.
Serial Extraction in Pyorrhea. W. C. Davis.—p. 380.

Neurological Bulletin, New York

October, 1918, **1**, No. 10

Brown-Sequard Syndrome. C. A. McKendree.—p. 373.
Senile and Presenile Psychoses. I. J. Sands.—p. 377.
Nature of Muscular Dystrophies. Report of Changes in Cardiac Muscle in Two Cases. S. P. Goodhart, and J. H. Globus.—p. 386.

New York Medical Journal

Jan. 4, 1919, **109**, No. 1

Surgical Treatment of Intestinal Ptosis. J. R. Goffe.—p. 1.
Good Posture. J. F. Rogers.—p. 9.
Tonsillectomy vs. Helioelectric Methods. T. M. Stewart.—p. 13.
Varying Manifestations at Different Stages of Influenza Epidemic. C. C. Leck.—p. 18.
Fads and Fancies About Pulmonary Tuberculosis. H. Schwatt.—p. 20.
Surgeon and Internist in Treatment of Exophthalmic Goiter. I. Bram.—p. 21.
Cases of Shock. C. G. Cumston.—p. 24.

Jan. 11, 1919, **109**, No. 2

*Medical Treatment of Cancer. L. D. Bulkley.—p. 45.
Development of Consciousness. H. J. Mulford.—p. 50.
Envenomization Suggested as Etiology of Obscure War Diseases. A. Young.—p. 54.
Spanish Influenza Epidemic. J. J. Levbarg.—p. 59.
Foreign Bodies from Trachea and Bronchi. R. McKinney.—p. 60.
Military Training As a Factor in Public Health. C. O. Linder.—p. 60.
Wounds of Knee Joint. C. G. Cumston.—p. 64.

Medical Treatment of Cancer.—Bulkley reviews the etiology and pathogenesis of cancer. He cites references in support of his belief that cancer is the result of a metabolic disturbance, hence in the treatment regulation of the diet is of prime importance. In fact, he says, diet is the most important part in the treatment and prophylaxis of cancer. Drugs are used only to make the metabolism correct and to keep it so. For this purpose Bulkley prefers acetate of potassium, in doses of from 15 to 30 grains, generally combined with nux vomica and fluid extract of rumex root, given three times daily, half an hour before meals, well diluted. Fluid extract of cascara is commonly added, in doses sufficient to secure full and free daily action of the bowels. Iron and phosphatic preparations are also called for in most cases, even over long periods, and very many other remedies may be needed from time to time to render the metabolism correct. Bulkley says that there is no comparison between the results thus obtained and those claimed by surgeons.

Northwest Medicine, Seattle

December, 1918, **17**, No. 12

Traumatic Hysteria and Its Relation to Corporation Employees. W. B. Ewing.—p. 329.
Fractures. J. W. Aird.—p. 332.
Use of Thomas Splint. E. F. Root.—p. 335.
*Intensive Vaccine Treatment of Lung Complications in Present Influenza Epidemic. E. O. Houda.—p. 336.

Vaccine Treatment of Lung Complications of Influenza.—Every case of influenza, with persisting evidences of active disease after the fourth and fifth day, was regarded by Houda as a potential pneumonia because all of them had the findings which preceded the typical evidences in fatal cases, so that Houda is convinced that if untreated they would have developed into the severe types of pneumonia. In all of these beginning pneumonias the usual influenza symptoms were present and all of them had a leukopenia. The intensive vaccine treatment employed consisted of twelve hourly injections of a sensitized pneumostreptococcus vaccine with a total content of 2,000,000,000 of each bacterium, this dosage being given each night and morning until positive evidences of defervescence took place. These evidences usually showed before the fourth dose was given. In no case were more than four doses given. At the end of forty-eight hours there was a marked decrease in the temperature, with a corresponding drop in the pulse rate. After seventy-two hours, the general condition of patients was very similar to the postcritical state of the regular croupous pneumonia. Those who had had consolidation with tubular breathing and dulness still present these signs. These persisted for as long as two weeks before clearing up entirely, with no temperature and normal pulse after the first forty-eight to seventy-two hour period.

Oklahoma State Medical Journal, Muskogee

December, 1918, **11**, No. 12

Primary and Secondary Manifestations of Pulmonary Tuberculosis. O. A. Flanagan.—p. 377.
Diagnosis of Pulmonary Tuberculosis with Special Reference to Symptoms. L. J. Moorman.—p. 385.
Tuberculosis As a Sequelae of Influenza. C. J. Fishman.—p. 388.
Some Results of First Year's Work. J. Schevitz.—p. 390.

Public Health Journal, Toronto

December, 1918, **9**, No. 12

Study in Diphtheria Mortality, Comments on Treatment. A. L. Hoyne.—p. 560.
What is a Patent Medicine? F. Raney.—p. 569.
Ministry of Health. A. C. Munro.—p. 573.

South Carolina Medical Association Journal, Greenville

December, 1918, **14**, No. 12

Acute Perforations in Abdomen. A. E. Baker.—p. 307.
Appreciation: H. E. McConnell. Wm. R. Wallace.—p. 309.

Southern Medical Journal, Birmingham

December, 1918, **11**, No. 12

*Analysis of 100 Cases of "Rheumatism." W. H. Deaderick.—p. 777.
Pneumonia at Camp Greene. H. Elwyn.—p. 780.
*Report of R. M. Thompson Pellagra Commission of New York Post-Graduate Hospital and Medical School. J. F. Siler, P. E. Garrison and W. J. MacNeal.—p. 786.
*What is Relation of Wages to Public Health? A. E. Holder.—p. 787.
Infection by Bacillus Coli Communis Complicating Pregnancy, Labor and Puerperal State. E. P. Davis.—p. 793.
Future of Railway Medicine and Surgery. W. E. Vest.—p. 796.
Injuries to Eyes of Railway Operatives. Their Prevention and Treatment. G. H. Price.—p. 799.

"Rheumatism" Analyzed.—Deaderick urges a careful examination before pronouncing a diagnosis of "rheumatism." His analysis showed that there were forty-four cases of arthritis in some form and three of muscular rheumatism, or forty-seven cases to which the term "rheumatism," if permissible at all, might be applicable, and that the diagnosis was entirely inappropriate in 53 per cent. of the cases. Thirty of the forty-four patients gave a history of gonorrhea. In the whole group of fifty-three incorrectly diagnosed cases there were eighteen of syphilis, with a positive Wassermann, eight cases of neuritis, four cases of tuberculosis, four cases of flat foot; three cases of pellagra were typical; two cases each of neurasthenia, arteriosclerosis, sciatica and tabes; one case each of chronic nephritis, chronic gastritis, progressive muscular atrophy, malaria, pernicious anemia and myelitis.

Study of Pellagra.—This study, made in two small towns, pellagra foci in South Carolina showed the disease to have been steadily on the increase from 1907 until 1914, this increase being less rapid, however, during the last three years. The incidence of this disease was slightly higher in the white than in the colored race, although this difference is gradually disappearing. Pellagra was relatively common from the age of 1 year up till puberty, when there seemed to be an abatement during that period, after which it increased again. During pregnancy there was an increased resistance to the disease, but this, in turn, was followed by a decrease of resistance during parturition, when occurrence or recurrence is especially liable to take place. Studies on recovery and recurrence showed the former to be more permanent in children than in adults. As regards the latter, it was found that a year without recurrence was an especially favorable omen. From the standpoint of the spread and location of the disease, the authors found that since 1914 practically all the new cases of pellagra in that community developed while the person was residing in the same house with, or next door to, a pellagrin in the active stage of the disease, or within six months after such exposure. It was further noted that following the installation of a proper sewage system the spread of the disease was almost wholly arrested, all of which tends to lend support to the infection theory regarding the spread and outbreak of pellagra.

Relation of Wages to Public Health.—Also published in the *American Journal of Public Health* 8:888, 1918.

Southwest Journal of Medicine and Surgery, El Reno

December, 1918, **26**, No. 12

Protein Therapy. E. H. Martin.—p. 265.
Official Report of 13th Annual Meeting of Medical Association of Southwest, Held in Dallas, Texas, Oct. 15-17, 1918.—p. 270.

Southwestern Medicine, El Paso

December, 1918, **2**, No. 12

Vagotonia. G. Werley.—p. 1.

Tennessee State Medical Association Journal, Nashville

December, 1918, **11**, No. 8

Cases of Foreign Body in Trachea, Bronchi and Esophagus. R. McKinney.—p. 293.
Influenza. J. J. Waller.—p. 298.
Ovarian Influences. G. R. West.—p. 300.
Backward and Downward Displacements of Uterus. J. F. Gallagher.—p. 305.
Unsettled Points in Etiology of Appendicitis. E. H. and J. P. Baird.—p. 310.

Texas State Journal of Medicine, Fort Worth

December, 1918, **14**, No. 8

Danger and Injustice of Special Legislation for Medical Sects. W. B. Russ.—p. 273.
Bronchoscopic and Esophagoscopic Foreign Bodies. R. C. Lynch.—p. 275.
Case of Foreign Body in Right Bronchus. Value of Thorough Roentgenography. S. N. Key.—p. 278.
Indicanuria. I. L. Van Zandt.—p. 279.
Cholecystectomy vs. Cholecystostomy. L. P. Allison.—p. 281.

FOREIGN

Titles marked with an asterisk (*) are abstracted below.

British Medical Journal, London

Dec. 14, 1918, **2**, No. 3024

*Filtrable Virus as Cause of Early Stage of Present Epidemic of Influenza. H. G. Gibson and J. I. Connor.—p. 645.
Medical Reports on Soldiers Discharged from Army for Conditions Known as "D.A.H." and "V.D.H." T. Lewis.—p. 647.
*Common Factor in Disordered Action of Heart (D.A.H.). L. M. Murray.—p. 650.
Intravenous Injections of Antimony Tartrate in Bilharziosis. J. B. Christopherson.—p. 652.
*Case of Fibroma of Trachea. J. B. Horgan.—p. 653.

Filtrable Virus in Influenza.—The investigations made by the authors and reported briefly in this paper confirm the observations made by Nicolle and Lebailly suggesting the etiologic part played by a filtrable virus in influenza cases. Two rhesus monkeys, inoculated subconjunctivally and intranasally with the filtered sputum from cases of human influenza, became ill on the sixth and seventh day, respectively, that is, after a period corresponding closely with that noted in human cases under similar conditions by Nicolle and Lebailly. Two control monkeys, kept in the same room under similar conditions, manifested no signs of illness during the same period. Of the two inoculated monkeys, one rapidly regained normal health, all symptoms appearing to have subsided by the third day of the attack. The other seemed to be on the mend on the afternoon of the third day, when it was killed for further examination. In the animal the respiratory tract was found to show the presence of a hemorrhagic exudate affecting especially the lower lobes of both lungs. The condition found was in many respects comparable to that noted in certain human cases of influenza in which a fatal issue had supervened before the occurrence of marked secondary infection. In this connection it is interesting to recall the tendency to hemorrhages so often noted during the present influenza epidemic, generally early in the disease. Two rhesus monkeys, at first used as controls and subsequently inoculated, the one with filtered, the other with unfiltered sputum, collected from a case of influenza on the sixth day of the disease, showed no symptoms and remained well.

Common Factor in Disordered Action of Heart.—Murray directs attention to the importance of all debilitating factors in the life history of the individual, which, although disappearing without trace, nevertheless have created a vicious circle which readily recurs, and under any stress will reappear and alter every function of the body, mental and physical.

Fibroma of Trachea.—Horgan's patient was only 9 years of age. When first seen by him, the boy presented all the clinical signs of almost total tracheal occlusion. There was orthopnea and marked stridor, especially during inspiration. The lower sternal and costal cartilages, as well as the upper abdominal parietes and suprasternal notch, were in a state of permanent and very decided retraction. No breath sounds could be heard with the stethoscope in either lung, but a loud vibratory sound was audible over the upper central sternal region. The pharynx and larynx were normal. Examination of the trachea, carried out by means of the Avellis procedure, disclosed what appeared to be a dusky red, globular tumor, situated very low down in the trachea. Horgan performed a low tracheotomy under local anesthesia, but found that the tumor mass lay below the longest tracheotomy tube available. Holding the tracheal rings apart, Horgan inserted a small Luc's nasal forceps in the direction of the bifurcation, grasping and removing a hard pediculated tumor. Breathing at once became easy and consciousness returned. The patient made an uneventful recovery. The specimen proved to be a fibroma, and consisted chiefly of fibrous tissue and blood vessels covered by compound epithelium.

Dublin Journal of Medical Science

December, 1918, **146**, No. 564

Influenza. G. Peacocke.—p. 249.
Id. J. Speares.—p. 253.
Surgical Therapeutics and Operative Technic. E. Doyen.—p. 259.
Statics of Female Pelvic Viscera. R. H. Paramore.—p. 263.
Principles of General Physiology. W. M. Bayliss.—p. 264.
Elements of Science of Nutrition. G. Lusk.—p. 265.

Lancet, London

Dec. 14, 1918, **24**. No. 2

Medical Examination of Aviation Candidates. G. A. Sutherland.—p. 803.
Trench Fever Cachexia. R. D. Rudolf.—p. 809.
*Value of Germinated Beans in Treatment of Scurvy. H. W. Wiltshire.—p. 811.
*Beer and Scurvy. A. H. Smith.—p. 813.

Germinated Beans in Treatment of Scurvy.—In the hospital in which Wiltshire made his observations, two wards, each containing twenty-seven beds, were specially devoted to the purpose of comparing the therapeutic values of germinated beans and fresh lemon juice in scurvy. Scurvy cases were admitted to these two wards alternately without selection. In one ward each patient was given 4 ounces of fresh lemon juice daily, the juice being expressed in the ward, sweetened slightly, and given as a measured dose by the sister. In the other ward each patient received a portion of germinated beans which had weighed 4 ounces in the dry state, half being taken at dinner and half at tea. In respect of other forms of treatment, such as tonics and local treatment to the mouth, no difference was made between the two wards. Thirty patients were treated throughout with lemon juice, and twenty-seven with beans. Contrasting them as regards severity of disease at the commencement of treatment, those treated with beans were, on the whole, slightly worse. Comparing the results of treatment, there is a small but definite difference in favor of those treated with beans, 70.4 per cent., being cured within four weeks, as against 53.4 per cent., of those treated with lemon juice. These figures favor the bean cases unduly, the real difference being better expressed by the time taken for the gums to return to normal, which was 3.1 weeks for bean cases and 3.4 weeks for lemon cases. In another series of twenty-one cases beans were not given until the patients had failed to make satisfactory progress after an average of four weeks' treatment in hospital by other means. These, although they had shown themselves rather refractory to ordinary treatment, all showed acceleration of progress when put on the beans, and in some the difference was very marked.

Beer and Scurvy.—Beer was held for generations to have considerable value as an antiscrobutic, and was long used as such on sea voyages. The virtue of it was not attributed solely to the various ingredients from which it was brewed but largely to the fermentation itself, and beers were made of different materials and in different ways. Spruce beer and sweetwort were especially useful. Malt which is not "highly dried," as in the modern manner, probably retains much of its potency. But, Smith says, with the elaborating and perfecting of malting and brewing processes, the antiscorbutic element seems to have been largely, if not completely, eliminated from malt beer.

Archives de Médecine des Enfants, Paris

December, 1918, **21**, No. 12

*Endocrine Glands and Dystrophy. V. Hutinel.—p. 617. Conc'n.
Large Doses of Diphtheria Antitoxin. G. Bosc.—p. 648.
*Suprarenal Hemorrhage in Children. J. Comby.—p. 651.

The Ductless Glands and Development of Bones.—In this concluding portion of Hutinel's study of "endocrine glands and bone dystrophies" he discusses the therapeutic indications which emerge from this long study of the general pathology of children. He says that organotherapy does not seem to have fulfilled its promises but he thinks that this is because we have been asking too much of it. We cannot expect it to cure incurable infirmities and deformities. If we distinguish the cases in which it will prove actually useful and reliable, and we are content to wait for the benefit to become apparent and not expect it immediately, effectual and durable results can be counted on with it. It must be confessed, he adds, that notwithstanding the abundant literature on the subject, we are still in the tentative stage. It is only by pursuing the investigations, keeping up observations over years, and supplementing them by animal experimentation, that the profession can hope to obtain a decisive judgment on this great question of the organotherapy of dystrophies.

Out of door life, hygiene, dieting, tonics, etc., are indispensable adjuvants to organotherapy and as there are usually more than one endocrine gland involved, it is important to determine which ones. Tentative treatment and occasional failures are inevitable but experience will gradually clear away the uncertainty. It is wise to begin with small doses, as exaggerated susceptibility is not infrequent. Rachitis in infants develops under the influence of defective feeding and digestive disturbance with superposed damage from acute or chronic infections. All of the organs may have suffered more or less in their development, including the endocrinous glands, and their functional upset may add to the clinical picture. An organ extract might help but again it might not. The main reliance is on diet, cod liver oil, phosphorus, etc. But with rachitis in adolescents, supplementary to general hygiene, a trip to the seashore or mountains, rest for body and mind, with ample regulated exercise, thyroid, pituitary, ovary, testicle, even suprarenal extract may have a decidedly favorable influence. We must bear in mind, however, that rachitis at this age is transient and subsides spontaneously; this is another reason for combating it so that it need not leave deforming traces. In osteomalacia the most brilliant results have been realized with suprarenal treatment, sometimes associated with pituitary and thyroid treatment. In two such cases the inherited syphilis had beforehand been given prolonged intramuscular mercurial treatment with the benzoate. In chronic rheumatism, organ therapy gives the best results when the lesions are of recent development. Thyroid, supplemented with epinephrin or suprarenal capsule or pituitary is generally ordered; ovarian treatment for older girls. In adults there is not much encouragement for organ therapy of chronic rheumatism, except possibly with thyroid and ovarian extract for women, given early. Later, they are only possibly useful adjuvants. To be effectual they must be begun at the start and be long kept up.

When a child keeps small, backward in developing, infantile, and there is reason to assume deficient thyroid functioning, thyroid treatment is absolutely indicated. It should be with large doses, long kept up. It may sometimes be useful to add ovary, testicle, pituitary or suprarenal treatment in addition to the cod liver oil, iron, arsenic or other measures that may be needed. With giant growth and acromegaly there are usually several glands involved, and pituitary treatment is generally futile as the lesions are irreparable. In the obese, and with deformed bones, thyroid treatment is the chief indication at first, and later, pituitary. Ovarian or testicle treatment should be added if the genital organs are backward in developing, plus calcium and iron, and hygienic environment. It is wise to weigh frequently and not to try to reduce the weight too fast. In children that are thin and look as if they had consumption, with trophic disurbances in bones and skin, suprarenal capsule, associated sometimes with pituitary and always with general hygiene, has given encouraging results, undoubtedly because there is a certain degree of suprarenal insufficiency.

Suprarenal Hemorrhage in Children.—Comby analyzes some recent works on hemorrhage in the suprarenals in children. When it is actual apoplexy, it is inevitably fatal, but with anything short of this, with low blood pressure, intermittent cyanosis and asthenia, large and repeated doses of epinephrin are called for, watching over the effect by the arterial pressure. He cites Vollbrach's case in which a girl of 15 presented purpura a year before developing Addison's disease.

Bulletin de l'Académie de Médecine, Paris

Dec. 3, 1918, **80**, No. 48

Arsenic-Quinin Treatment of Influenza. A. Gautier.—p. 474; A. Robin.—p. 479.
*Nature of the Influenza Germ. B. Roussy.—p. 482.
*Uneven Pupils after War Wounds. A. Tournay.—p. 486.
Extraction of Projectile in Lung under Screen Control and through Minimal Incision. P. Mauclaire.—p. 488.

Influenza.—Roussy says that between 1889 and 1894 he himself had over a hundred attacks of grip, and his observations on himself as well as on others have convinced him that the virus is a volatile poison in the air around an influenza patient. When breathed by a susceptible person its toxic action is felt at once; it seems to be a species of pathogenic microbe invisible with the most powerful microscopes, and far more virulent than any other known microbes—a kind of living vapor.

Uneven Pupils.—Tournay refers to some cases of miosis resulting from war wounds entailing some deficiency in the cervical sympathetic functioning.

Presse Médicale, Paris

Dec. 5, 1918, **26**, No. 67

*Injections of Saccharose. D. Lo Monaco.—p. 617.
*Pituitary Polyuria. A. Bergé and E. Schulmann.—p. 618.
Oscillography of the Heart and Vessels. A. Strohl.—p. 620.
*Treatment of Tuberculous Glands. L. Dufourmentel.—p. 621.

Injections of Sugar in Treatment of Tuberculosis.—Lo Monaco is director of the Institute of Physiologic Chemistry of the University of Rome, and the results of his research on subcutaneous injections of sugar have been widely heralded as the sugar treatment of tuberculosis. He here brings the subject down to date, emphasizing that small doses of sugar promote secretion while large doses check it. He relates that subcutaneous injections of small amounts of sugar increase the secretion of milk in women and in cows, without modifying the quality of the milk. On the other hand, injection of a comparatively large amount reduces or arrests secretion, as also occurs when a compress dipped in a thick solution of sugar (equal parts) is applied to arrest superficial or deep hemorrhages. This solution is kept constantly on hand for this purpose by several surgeons at the large hospital in Rome. It has proved its usefulness after transvesical prostatectomy, splenectomy, operations on the brain, and in uterine hemorrhage. It is constantly used for operations on animals, and has been found effectual in reducing suppuration and hastening the healing of wounds. This action on wounds suggested the use of sugar to reduce expectoration in pulmonary tuberculosis, and Lucherini and Galea, his pupils, applied in several cases these daily injections of sugar solution. Their reports were enthusiastic, saying that the secretions, expectoration, and night sweats subsided. Many private patients after forty-five or fifty injections have suspended the treatment with no return of expectoration to date. Even the moist râles have subsided and several of the patients have returned to work, no longer a danger for others. The treatment is indirect, but there is reason to assume that the process in the lung is tending toward healing.

The only drawbacks of the method are that the injections are painful, and a little cocain has to be added. They are also liable to induce fever of a septic type in some; in others they arrest fever. The sugar treatment displays no efficacy in florid phthisis with grave intoxications. Its field, he reiterates, is in cases in which the acute phase is past and the main symptoms are profuse expectoration and night sweats, with little or no fever, but great debility and emaciation. In such cases the sugar injections may induce actual resurrections. Improvement is manifest by the tenth day. This treatment is very useful also in cases of dilatation of the bronchi, in asthma and in emphysema. The injections are entirely harmless, the toxic dose of sugars being from 10 to 15 gm. per kg. of body weight. There are no contraindications, but the treatment should always be under the supervision of a physician, and he should emphasize that the sugar does not act on the tubercle bacillus directly. When there is no further expectoration, the tubercle bacillus dies out from lack of a suitable medium for its propagation. The sugar injections modify also gastric, pancreatic, biliary, renal and other secretions as well as bronchial secretion. His pupil, Barba, has treated large numbers of the tuberculous by this means and kept them long under supervision. Lo Monaco does not mention the daily dose of sugar injected, but it has been stated elsewhere as 5 gm. of saccharose in 5 c.c. of sterilized distilled water (THE JOURNAL, Sept. 28, 1918, p. 1083).

Pituitary Polyuria.—In a case described there was variable polyuria, more pronounced at night. At times the output of urine measured more fluid than the woman had drunk during the twenty-four hours, but the food eaten did not seem to modify the total output, and the composition of the urine and the functioning of the kidneys seemed normal. The most interesting feature of the case was the constant subsidence of the polyuria when the patient was given the extract of the posterior lobe of the pituitary gland. The effect of this treatment is the touchstone which reveals the pituitary origin of the polyuria. In this case necropsy revealed eight gummatous lesions in the pituitary, mostly in the posterior lobe. The woman succumbed to progressive debility and dehydratation.

Operative Treatment of Tuberculous Glands in the Neck.—Dufourmentel reports that rapid and complete healing was always realized in his cases after excision of tuberculous glands in the neck, and he ascribes this invariable success to his routine procedure of suturing immediately without draining. In more than half of his sixty-three cases the gland burst and pus inundated the field, but his assumption that the pus in such cases is sterile was always confirmed by the healing by primary intention. The clips were removed the sixth day: the fifteenth the patient was sent away to convalesce. The scar later naturally was scarcely perceptible unless there had been a preceding fistula. Operative treatment should be preferred for men, and when there are already scars, or the glands are extremely large. He warns that the teeth and tonsils must be put in order or the glands may be infected anew.

Progrès Médical, Paris

Nov. 2, 1918, **33**, No. 44

*Quinin and Arsenic in Prevention of Influenza. C. Garin.—p. 369.
Grave Lesions from Contusion by Projectile. Chaton.—p. 369.
Partial Inversion of Viscera. L. Moreau.—p. 371.

Nov. 9, 1918, **33**, No. 45

*Foreign Body in Knee. J. Fiévez.—p. 377.
*Fracture of Scaphoid Bone. P. Japiot.—p. 378.
Exploration of Renal Functions in Nephritis. P. V. Radot.—p. 379.
Hygiene in France. Granjux.—p. 380.

Quinin in Prevention of Influenza.—Garin noticed that none of the men being given treatment for malaria developed influenza at Lyons. He sent a questionnaire to the ninety hospitals or hospital sections devoted to the care of malarial soldiers, inquiring as to their experience with influenza this year. Replies were received from forty-six institutions and 61 per cent. reported no cases of influenza among the malarial inmates, and 20 per cent. influenza in a very mild form among them. In 19 per cent. no difference as to the incidence of influenza was noted among the malarial and the nonmalarial. The protection seems to be greater when the malarial are taking both arsenic and quinin. At the Lyons hospital, thirty of the malarial inmates aided in caring for the 300 influenza patients but none of them contracted the disease.

Foreign Body in the Knee.—The knee was bent in irreducible contracture and this and recurring hydrarthrosis were explained by a minute shadow of a scrap of shell at the median posterior superior part of the joint, at the upper part of the anterior aspect of the crossed ligaments.

Fracture of the Scaphoid Bone Without Displacement.—Nothing but the roentgen rays would have allowed the discovery of this fissure in the bone, and only by profile radiograms of the painful and the sound foot. It is indispensable also to apply roentgenography early, before time has modified the aspect of the fissure.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 20, 1918, **48**, No. 16

Notes of an Otologist in Austro-Hungarian Military Hospitals. W. E. von Rodt.—p. 497.
The Cremaster Reflex Zone. E. Loewy.—p. 507; A. Rodella.—p. 507.
War Gas Phlegmons. P. F. Nigst.—p. 508. Conc'n.

April 27, 1918, **48**, No. 17

*Compulsory Insurance against Sickness and Accidents. F. de Quervain.—p. 529.
*Plastic Motor Surgery. H. Hoessly.—p. 538.
*Prophylaxis of Endemic Goiter. R. Klinger.—p. 546.

Insurance Against Sickness and Industrial Accidents.—De Quervain reviews his experience with the workings of the new legislation on insurance against sickness and industrial accidents in Switzerland. He comments on the leveling effect of practice among the insured. Some who do not require it get an undue proportion of the physician's time and tendance, while others who need it more get only the same average attention. This is the great drawback of contract practice. Next in importance to this is the danger of the physician's clerical work overshadowing his strictly professional work. The physician must impress on himself that the description of a symptom on his certificate is not a diagnosis. Headache, for example, may warn of nephritis or brain tumor. Trigeminal neuralgia, on the other hand, is usually accepted as merely functional until after the failure of treatment. The same may occur with pain elsewhere and precious time be wasted in case of malignant disease. The insured with acute appendicitis, etc., is not so well off as the man picked up on the street, as the police take the latter to the hospital at once, while the insured, with a perforated gastric ulcer or acute pancreatitis, is kept at home for the insurance medical officer to see what is the matter, and by the time he reaches the surgeon, the latter has no chance for anything except to sign the death certificate. Careful clinical study of the case is a fine thing except when the life depends on an hour more or less. It is better to save a sick man undiagnosed than to let him die correctly diagnosed. De Quervain warns the physicians of his town against this tendency, the dire effects of which are being seen more and more by the surgeons in the hospitals. The opposite tendency is equally disastrous in chronic disease; cancer of the rectum, for instance, being overlooked for weeks, as the bleeding is ascribed to hemorrhoids alone. Many a retrosternal goiter goes unsuspected and the case recorded as emphysema or bronchitis. Intercostal neuralgia may mask spondylitis or cancer of the ribs. If only the term catarrhal affection of the bladder could be stricken from the list, tuberculosis of the kidney might be detected oftener and earlier. He warns in particular against the term sciatica. This may cover almost anything, from diabetes to cancer. All the possibilities must be systematically borne in mind in every case. The correct diagnosis requires examination, and thorough examination takes time, and the time at the insurance physician's disposal has to be mainly taken up with making out the clerical record of the case. This is the evil side of the present law.

The evil side of industrial accident insurance is that the injured workman feels that he has certain rights from being insured which set him apart from other injured persons. He looks on the physician as not his friend, not even a neutral, but the man whose dictum as to the compensation he is to receive will never be as favorable to him as he wants it to be. His first letter, his first call on getting out, are to the lawyer to defend him against the physician, against the insurance company, against society at large, all banded together to prevent his getting his just rights. This state of mind is much more universal than physicians imagine. We must keep it constantly in mind through the entire management of the case. We must apply psychiatric prophylaxis and therapy to help the man overcome the inhibitions engendered by this psychology, and do this—and this is the main point—without letting him notice it. For instance, the first use of a limb after a fracture is always more or less painful and disagreeable, but the noninsured man goes at it as a necessary part of his getting well. The insured man, on the other hand, resists the exercise, postponing it until it can be done without disagreeable sensations. He cannot understand that he, the workman to be compensated, must conform to Nature's laws, as for him there are no duties, only his rights. The more consciously he comprehends this, the greater the inclination to exaggeration and then to simulation. The care of the single patient and the whole practice in workmen's compensation cases must be inspired by prophylaxis against these tendencies of the insured, without letting them suspect our aim. First and foremost is the necessity for treatment of the insured and noninsured together and on an equal footing. Anything that suggests that the insured is a special personage must be combated. The greed of the insured is contagious, and when they are segregated it develops more and more, and tricks are invented and taught to others. Special hospitals for certain industries, etc., may be necessary, but when they can be avoided it is much better to keep the injured workmen, without any discrimination, among the general accident cases.

De Quervain reviews the various industrial accident cases liable to be encountered and the special pitfalls for the unwary diagnostician. He has frequently encountered cases of fracture of the atlas or total luxation of the fifth thoracic vertebra without the slightest apparent injury of the spinal cord, and hence the fracture had escaped detection. Symptoms from the roots may point to the injury unless they are mistaken for rheumatism. A fracture need not be mistaken for a simple sprain or contusion if we recall that pain on axial pressure subsides in a few days, while the sharply circumscribed local pain on pressure of a fracture persists for three or four weeks.

He warns that all injury of nerves must be sought and registered with special care so that an attempt may not be made later to ascribe the nervous trouble to the treatment applied. The axillary nerve with dislocation of the shoulder and the radialis with fracture of the shaft are the ones usually involved. A puncture or stab wound of the tendon sheaths usually heals in two or three days, and the physician seldom has the courage to cut down to the tendon, but fatal sepsis may be the result of abstention or even of too timid an incision. Several short but deep incisions may save the finger functioning and perhaps the life. Many other useful warnings and suggestions for management of industrial accident cases are given and specific instances described in illustration.

Plastic Motor Operations.—Hoessly describes among others his success in enabling the artificial fingers to be moved from the natural sources of energy in the short stump of the left forearm in a case illustrated. The patient was a girl of 16 and the stump was a congenital deformity. The sensibility of the stump was remarkably acute, approximating that of normal fingers. Nine illustrations show the prosthesis devised for this case and the nearthrosis of the elbow which facilitated functioning to such an extent as to suggest the advisability of artificially inducing a nearthrosis of the kind at amputations. The force here is derived mainly from the elbow joint and not from the muscle alone. The girl runs the sewing machine, threads her needles, takes measures, etc., and is self-supporting as a seamstress. In another case of congenital defect of the left hand, ample force for voluntary control of artificial fingers is obtained from the wrist.

Prophylaxis of Endemic Goiter.—Klinger advocates that at least 2 or 4 mg. of iodin should be given to each person daily in experiments in the prophylaxis of goiter. Any amount less than this is futile. Even this totals only from 1 to 1.5 gm. per year.

Gazzetta degli Ospedali e delle Cliniche, Milan

Aug. 22, 1918, **39**, No. 67

*Epithelioma Developing on Lupus. C. Vignolo-Lutati.—p. 655.

Aug. 25, 1918, **39**, No. 68

*Serotherapy in Erysipelas and Typhoid. A. Campani and F. Bergolli. —p. 662.

Cancer Developing on Lupus.—Lutati has encountered two cases of cancer developing on lupus, among 107 patients with lupus vulgaris. One was a man of 35 who had had lupus for twenty years. The other was a woman of 26 with lupus of fourteen years' standing. Both died within a month or six weeks after applying for treatment, the carcinoma or epithelioma running a rapidly fatal course, involving cheek, nose and lip. The woman refused an operation and the growth was already inoperable in the man when first seen. In a third case the carcinoma developed in the scar tissue left from erythematous lupus. He thinks that probably scar tissue is always involved in the development of cancer on lupus as this occurs only in old cases in which there is probably more or less cicatricial tissue. One of the advantages of the Finsen treatment is that the healing under it leaves such good scars. In conclusion he cites the figures from five clinics, each with from thirty-one to eighty-six cases of carcinoma on lupus tissue, and from eleven to thirty-six developing on healed lupus lesions.

Intravenous Serotherapy in Erysipelas and Typhoid.—Campani and Bergolli have been using diphtheria antitoxin by the vein in treatment of erysipelas, and report excellent results from it. They tried antistreptococcus serum at first but found the diphtheria antitoxin more potent. They gave this treatment only in the graver cases, with fever, delirium and prostration, but without abscesses. Three of forty-eight soldiers treated with the usual measures died, but none died given this intravenous treatment. The dose was 10 c.c. representing 5,000 units. The results justify, they think, that this treatment should be systematically given the preference in the graver and rebellious cases. In typhoid the experience was about the same, only that of all the vaccines and serums tried antimeningococcus serum seemed most effectual. They give the details of seven typical cases to show the efficacy of this nonspecific serotherapy. Antistreptococcus serum has not proved effectual in erysipelas nor antityphoid serum in typhus, according to the general consensus of opinion, but this nonspecific serotherapy reduced the mortality appreciably in his cases although it was applied only in the gravest forms of the disease. The prompt return of consciousness and the euphoria were the most striking effects at first, although the drop in the temperature was impressive. No phenomena suggesting anaphylaxis were observed in any instance. From three to five injections were made by the vein, on successive days, using 10, 20 or 30 c.c. at last.

Policlinico, Rome

Nov. 24, 1918, **25**, No. 47

Pathogenesis of Influenza. O. Paleani.—p. 1133.
*Absent Knee-Jerk in the Healthy. G. Garbini.—p. 1136.
Tropical Dermatoses in Libyan Region. F. Leporini.—p. 1146.

Dec. 1, 1918, **25**, No. 48

*Amebic Dysentery. T. Pontano.—p. 1161.
Aerophagia of Nasopharyngeal Origin. G. Bilancioni.—p. 1171.
*Rupture of Spleen. B. Masci.—p. 1174.

Absent Knee-Jerk in the Healthy.—Garbini remarks that in the two apparently healthy and robust young men, brothers, in whom it was impossible to elicit the knee-jerk, as also in eight similar cases on record, one of the parents had a history of syphilis although no trace of it was evident in the children.

Amebic Dysentery.—Pontano emphasizes that the demobilization of the troops will probably bring cases of amebic dysentery into current medical practice, and he here reviews our present knowledge on diagnosis and treatment. Emetin, he asserts, given in time will ward off complications as well as recurrences. When the amebic is associated with bacillary dysentery, serotherapy should be pushed in addition, from 20 to 40 c.c. a day.

Rupture of Spleen.—A fall from a window caused such concussion of the brain and shock that several hours elapsed before the robust girl recovered consciousness, and no symptoms on the part of the abdomen could be detected before this. Then it was discovered that the spleen had been ruptured and torn completely off its pedicle although there were no signs of contusion of chest or abdomen. The vessels in the pedicle had spontaneously ceased bleeding. The spleen was found absolutely sound otherwise.

Riforma Medica, Naples

Nov. 16, 1918, **34**, No. 46

*Indoxyl in the Feces. O. Cantelli.—p. 910.
Deep Incisions for Severe Epididymitis. G. Garibaldi.—p. 912.
*Roentgen Localization of Foreign Bodies. A. L. Soresi.—p. 913.
Referendum on Influenza. Bonome and others.—p. 915; S. Chirico. —p. 923.
Present Status of Operative Treatment of Tuberculosis of Male Genital Organs. E. Aievoli.—p. 919.

Indoxyl in the Urine.—The results of Cantelli's research suggest that indoxyl is not a normal constituent of the urine, and is not present in certain forms of sickness. But it was found in some cases of appendicitis and of occlusion of the colon. This apparently indicates that the indoxyl in the feces is of autochthonous origin, dependent on special conditions in the bowel resulting from partial or complete closure of the lumen.

Roentgen Localization of Foreign Bodies.—Soresi fastens the limb to be examined in a frame to hold it immovable, as shown in illustrations. Very useful is a little device with blades and handles like forceps. One blade terminates in a lead ring, the other blade in a small pad which is dipped in ink. When the hand releases the upper handle the pad drops in the center of the lead ring. This marks the spot on the skin as the foreign body is seen with the rays and centered in the lead ring. By examining from different points and marking the spot casting a shadow, the foreign body is located with precision without any calculations, etc.

Gaceta Medica de Caracas

Oct. 31, 1918, **25**, No. 20

*Relapsing Fever in Venezuela. C. J. Bello.—p. 209; p. 213.
Insect Transmitters of Relapsing Fever. Bello and Sucre.—p. 215.
Case of Thrombosis of Mesenteric Vessels. L. Razetti.—p. 216.
*Gastro-Enterostomy for Stenosis of Pylorus. Razetti.—p. 217.

Relapsing Fever in Venezuela.—Bello gives the details of six cases of autochthonous relapsing fever at San Cristóbal. The spirochete was cultivated from the blood of all, including one boy of 5 who had four paroxysms of fever. Treatment was merely symptomatic in this and some of the other cases, but two adult patients were given 0.3 or 0.45 gm. of neo-arsphenamin by the vein. Bugs of the cimex and flea families or ticks were found in the patients' homes, but the evidence seems to incriminate more the ticks in the transmission of the disease.

Stenosis of the Pylorus.—Razetti reports a case of stenosis of the pylorus which he says is the third operative case on record at Caracas, and the first one in which the posterior transmesocolic gastrojejunostomy completely cured the patient.

Medicina Ibera, Madrid

Aug. 17, 1918, **4**, No. 41

*Thrombosis in Mesenteric Vessels. E. Avellan.—p. 157.
Diagnosis of Concrete Sebaceous Acne. Sicilia.—p. 160.

Aug. 24, 1918, **4**, No. 42

*Intravenous Treatment of General Paresis. E. F. Sanz.—p. 187.
Sulphur in Psoriasis. J. F. de la Portilla.—p. 189.

Thrombosis in Mesenteric Vessels.—Avellan ascribes to thrombosis and embolism in the mesenteric vessels a certain proportion of fatalities after abdominal operations in which forceps with elastic blades were used. They injure the intima of the vessels, rendering the inner surface uneven, while the blood accumulates in the vessel below the compression—all factors which favor thrombosis. They can all be avoided by using long suture threads, passed through the stomach and loop of intestine, the ends of each left long, to lift the organs by, doing away with the necessity for forceps. In a case described, a volvulus seemed by exclusion to be the explanation for the ileus, but the laparotomy revealed embolism in the superior mesenteric artery. The man of 72 had atheromatous changes in the aorta, and embolism from this caused disturbances requiring resection of over 4 feet of the small intestine. The first symptom in the case had been sudden acute pain in the region in the vicinity of the umbilicus, soon after eating, accompanied by vomiting and rigidity of the abdominal wall in the region of the umbilicus. In a recent compilation of 200 cases, the mortality was 94 per cent. In 41 per cent. of the cases blood in the stools was an early sign of the mesenteric thrombosis or embolism.

Treatment of General Paresis.—Sanz calls attention to the great benefit derived in two cases of general paresis from intravenous injections of neo-arsphenamin or mercuric cyanid. One patient was a woman of 50, the other a man of 58. The latter was given thirty injections of the mercury preparation and eight of the neo-arsphenamin, in graduated doses, with potassium iodid internally. In the course of two months the improvement was striking, and the man was able to return to his responsible business position.

Prensa Medica Argentina, Buenos Aires

Oct. 30, 1918, 5, No. 15

*Beef Serum in Prophylaxis of Serum Sickness. J. Penna, J. B. Cuenca and A. Kraus.—p. 149.
Malformations of Uterus. M. L. Pérez.—p. 150.
*Protection for Motherless Nurslings. M. Acuña.—p. 154.

Prophylaxis of Serum Sickness.—See abstract 96 in The Journal, Jan. 18, 1919, p. 232.

Care of Infants Separated from Their Mothers.—Uruguay has a law which places the nurslings of women who go out to take positions as wetnurses, and all children under 2 who are separated from their mothers, under the care of the state and community. Acuña urges the adoption of a similar law in Argentina, and outlines a model bill for the purpose. There is supposed to be already a register for wetnurses with official supervision of the infants left behind at home, but this Oficina de Nodrizas is of little practical use, the wetnurses not taking the trouble to register and the public not realizing the advantages of a registered wetnurse with her health certificate. Registration should be made compulsory, and the person caring for the infant separated from its mother should be compelled to bring it for inspection every two weeks, and in case of sickness take it to the nearest dispensary and notify the Oficina de Nodrizas. The Roussel law in France specifies six months as the lowest age at which the mother can leave her child to take a position as wetnurse, but Acuña accepts five months as the limit. Persons caring for infants separated from their mothers should also register, and have their health and home inspected.

Revista Medica Cubana, Havana

November, 1918, 29, No. 11

*Causal Germ of Prevailing Epidemic. L. Plasencia, J. M. M. Cañas and F. Hurtado.—p. 569.
Impressions of Recent Trip to America. J. Santos Fernandez.—p. 592.

See third abstract below.

Semana Medica, Buenos Aires

Aug. 1, 1918, 25, No. 31

*Neuralgia of the Testicles. J. Nin Posadas.—p. 137.
Inflammatory Tumor of Cecum. A. Ceballos.—p. 146.
Utero-Abdominal Abortion. C. A. Castaño.—p. 149.
Unification of Public Health Forces. E. R. Coni.—p. 153.

Aug. 15, 1918, 25, No. 33

*Plastic Motor Surgery. G. B. Arana.—p. 201.
Pomegranate Flowers in Treatment of Dysentery. J. E. Carulla and R. A. Borzone.—p. 215.

Neuralgia of the Testicle.—Nin Posadas noticed that after an operation for varicocele by any method except that of extensive resection of the vaginalis, there was liable to be pain, generally accepted as neuralgia of the testicle or irritable testicle. His study of these cases, however, as in other cases with pains in the testicle convinced him that there was some organic basis for the pain although nothing pathologic could be seen. By pinching the vaginalis and palpating the testicle he found evidence of adhesions, and with a simple operation under local anesthesia he succeeded in breaking up these adhesions and curing at one stroke the "neuralgia" or "irritability" which had long tormented the patients. Eight typical cases are described in detail. There is usually a history of acute or chronic venereal disease or of trauma, and the vaginalis process may be of the adhesive type or fibrous or both. He could find no record in the literature of this unsuspected adhesive vaginalitis as the cause of the disturbances until, in 1912, Bellenger and Elder reported a case of intense neuralgia of the testicle cured by removal of the testicle. After its removal the discovery of minute adhesions explained the pains.

Plastic Motor Surgery.—Arana describes with twenty illustrations his method of making a single loop in the stump of a leg after amputation to utilize the motor forces still left for voluntary control of the prosthesis. He also describes with illustrations the procedures devised by others, and the principles involved. With his method the plastic motor in one case described has a potential force of 3 kilograms with 2 cm. of excursion. The tunnels were solidly lined with epidermis by the tenth day after the operation. He makes four incisions from 8 to 15 cm. long on different sides of the stump and resects the end of the bone in the stump. The skin between the four incisions is loosened to make four bridges, all well supplied with nerves and blood. Muscles that are not to be utilized and that are in the way are resected also. Then the loosened up skin forming the anterior and the posterior bridges is drawn down into two incisions which meet in the depths to form a tunnel. The skin is sutured together there and thus a skin lining for the whole tunnel is provided, first on one side of the tunnel and then on the other. A roll of gauze is then worked into the tunnel which is soon ready for use and is able to vitalize the artificial limb to a surprising extent by the loop formed by the sutured muscles.

Vida Nueva, Havana

November, 1918, 10, No. 11

*The Specific Germ of Influenza. L. Plasencia.—p. 293; —p. 311.
Motais' Operation for Ptosis of Upper Lid; Two Cases. A. F. Oñate.—p. 297.
Medical Treatment of Gastric Ulcer. R. G. San Martin.—p. 298.
The Epidemic of Influenza. O. Montoro.—p. 304.

Bacteriology of Influenza.—The main points of Plasencia's communication on the coccobacillus he isolated from influenza patients were given in The Journal, Dec. 7, 1918, p. 1928.

Kitasato Archives of Experimental Medicine, Tokyo

July, 1918, 2, No. 2

*Tsutsugamushi Disease. T. Kitashima and M. Miyajima.—p. 91. To be continued.
*Acceleration of Phagocytosis in Citrated Blood and Citrated Blood-Plasma. M. Otani.—p. 147.
*Pulverized Bile as Aid in Determination of Typhoid Bacilli in Water and in Blood. H. Toyoda.—p. 219.

Japanese River Fever.—This first instalment of this report on extensive research on tsutsugamushi disease is accompanied by three colored plates and several other illustrations. The article is in German, and describes experiments on laboratory animals and monkeys with successful inoculation by means of infected mites. The Japanese word *mushi* means "mite," and the present research has confirmed beyond question that the disease is contracted from the bite of a mite or acarus. From one to four of these mites were found on fifteen of twenty-six persons working on the river bank in the infested regions. Some of them had had the disease in previous years, but others had showed no signs of it at any time, so that not all the mites are infected.

Acceleration of Phagocytosis in Citrated Blood as Test for Tuberculosis.—Otani writes in English to call attention to the acceleration of phagocytosis by citrated blood when the blood comes from a tuberculous subject. Comparison with the opsonic index shows much more active phagocytosis with tuberculous than with normal blood. In 82 clinically normal cases the phagocytosis was weak in 56 and active in only 13, while in 100 tuberculous cases only slight phagocytosis was observed in 3 while 89 showed very active phagocytosis. His tabulated findings seem to demonstrate that in this activation of phagocytosis we have a specific reaction which promises to have important diagnostic value. He made an emulsion of virulent tubercle bacilli with 1.5 per cent. sodium citrate (containing 0.85 per cent. sodium chlorid), one volume of which was mixed with an equal volume of fresh blood. The phagocytosis was then observed. It was much more active in tuberculous than in normal blood. In cases in which apparently normal blood showed lively phagocytosis, the tuberculin test revealed that tuberculosis was already installed. The opsonic index fails to show any distinction between normal and tuberculous blood in respect to the phagocytosis. However, the virulence of the bacilli is a modifying factor, as with only slightly virulent bacilli the phagocytosis may be the same in all specimens of blood.

Desiccated Ox Gall in Bacteriologic Work.—As typhoid bacilli thrive on bile better than many saprophytic bacteria, Toyoda inoculates the culture medium as usual and then adds desiccated and pulverized bile to it. By this enrichment procedure even as few as ten typhoid bacilli per 100 c.c. of water can be always experimentally cultivated from it. Applying this technic to 150 different sources of the water supply revealed typhoid bacilli in four while with other technics only one was found contaminated. In testing typhoid blood, an 8 or 10 per cent. bile medium gave the best results in experimental research and an 8 per cent. in the clinic. The desiccated gall can be kept constantly on hand and is ready to use as needed. For the blood test he prepares a culture medium with 3 gm. pulverized gall; 1 gm. peptone; 0.5 gm. sodium chlorid and 100 c.c. water. In testing water he adds to 100 c.c. of the water a solution of 1 gm. peptone; 2.5 gm. sodium sulphate; 0.5 gm. sodium chlorid and 7 or 8 c.c. distilled water, and keeps it at 37 C. for eight hours to give the typhoid bacilli a chance to proliferate. The culture medium is then treated with a solution of the desiccated gall (3 gm. of the bile powder to 7 or 8 c.c. of distilled water), and 1 c.c. of a solution of 0.1 gm. kristallviolet in 100 c.c. of sterilized distilled water. This checks the development of other germs in the water. After standing for ten or sixteen hours at 37 C., a small amount of this culture fluid is transferred to Endo agar, making a series of tests. He prepares the fresh ox gall by heating in a Koch steamer and filtering, then it is desiccated and pulverized.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 19, 1918, **2**, No. 16

*Case of Tuberculous Porphyry Spleen. E. C. Van Rijssel.—p. 1292.
A Prescription Book from the Seventeenth Century. E. Wiersum.—p. 1300.
*Fatal Abortion by Oleum Sabinae. A. Welcker.—p. 1307.

Nov. 9, 1918, **2**, No. 19

*Reform in the Teaching of Medicine. G. Van Rijnberk.—p. 1527.
*Occult Blood in Stools. J. Koopman.—p. 1534.
*Research on Frog Heart. C. Bastert.—p. 1540.
*Vincent's Angina. H. M. Hijmans.—p. 1546.
*Uterine Cancer Without Bleeding. N. J. A. F. Boerma.—p. 1552.

Tuberculous Porphyry Spleen.—The diagnosis during life had been splenomegaly with probable lymphogranulomatosis, but necropsy failed to reveal any enlarged lymph glands and no foci were found in the liver, while the spleen showed advanced tuberculous changes and an aspect of the cut surface resembling that of porphyry. It had evidently become infected from an old latent apical focus. If it had been removed when first affected, the secondary liver and peritoneum tuberculous lesions might have been warded off. An exploratory puncture or incision might have cleared up the case in time. The patient was a man of 67.

Criminal Abortion.—The woman succumbed to what seemed to be a combination of hemorrhagic nephritis, peritonitis with urobilinuria suggesting pathologic conditions in the liver, blood in vomit and stools and psychic changes, with terminal uremic coma. Enough oleum sabinae was found in the cadaver to explain the fatal nephritis and probably the abortion, as the woman confessed to taking it for that purpose.

Reform in Medical Education.—Van Rijnberk refers to a recent book with this title published by Prof. J. Schwalbe, the editor of the *Deutsche medizinische Wochenschrift*. He insists that the curriculum should be revised at least every five years; the necessity for thoroughgoing changes now has been emphasized by the war. It has demonstrated the excessive proportion of specialists, and the necessity for training physicians to be less dependent on specialists. Schwalbe urges reform in two directions, by training the medical students in practical application of what they are taught, teaching them by letting them do things themselves instead of merely watching the professor do them, and by giving the student a training in philosophy. Elementary logic, philosophy and psychology should be a compulsory part of medical education. This provides a common platform on which all cultivated minds meet on an equal footing, while teaching him the use of the tools with which he is to build up his own knowledge. On the practical side, the students should take part in operations, and be allowed to operate themselves, under good control, as often as possible. Especially in gynecology and obstetrics, looking on is futile; the student must do the work himself.

Schwalbe urges that all hospitals, large and small, should be utilized for practical instruction of the students in internal medicine. He says that all the training the student ever gets now in disease of the throat, nose, ear, skin and sexual organs is merely enough to recognize the condition so that a specialist can be called in to treat it. He declares that students should be trained so they can treat these as well as diagnose them, instead of being merely a directory for the addresses of specialists. He says of instruction in pediatrics that its black side is the diagnosis and treatment of sickness in infants. Sickness in older children much resembles the same in adults, but still one semester of children's diseases is important. The students should be thoroughly grounded in social medicine and hygiene, occupational hygiene, school hygiene, medical legislation, and insurance against industrial accidents. The care and feeding of the sick should be taught both in theory and in practice. The students should be trained in cooking for the sick as well as in the bacteriologic laboratory and in the pharmacy. He insists that there should be a chair for pathologic physiology, general and experimental. If a separate chair is not available, a laboratory for this could be placed in charge of the physiology or pharmacology institutes. In conclusion he declares that more theoretical and practical training in orthopedics, mechanotherapy and massage is also indispensable.

The Significance of Occult Blood in the Stools.—Koopman reports experiences and cites some recently published by others which throw discredit on the finding of occult blood in the stools as a sign of ulcer or cancer. Baumstark reports positive findings now and then in the most diverse pathologic conditions, and others have recently published extremely contradictory findings. Wolff and Daw, for example, found occult blood in 92 per cent. of their cases of trichocephaliasis while Davidsohn obtained only negative results. Rosenthal reported in 1916 negative findings in 100 per cent. of his duodenal ulcer cases, and others found positive findings infrequent. In Koopman's own experience, occult blood was found in the stools only in 2 of 17 certain cases of duodenal ulcer and only in 3 of 7 cases of gastric ulcer. In one particularly striking case a young soldier for nearly three months had complained of pain in the stomach about an hour after eating. The lower margin of the stomach was 1 cm. above the umbilicus. There was no tenderness, and repeated tests for blood in the stools were constantly negative although the young man's diet was not restricted (except meat), and he was strolling about the grounds all day long. The thread impregnation test was negative when applied on three occasions. After a test breakfast, the acidity figure was 20, the total acidity 40, the stratification coefficient 1:2. The young man would have been sent back to service, labeled neurasthenia, if it had not been for a sudden extremely severe hemorrhage from the stomach one morning. Even in cases with a positive thread test, there was often no blood to be detected in the stools.

It is possible for an ulcer to bleed a little and the blood to become disintegrated and absorbed before it reaches the anus. Boas has reported a case with constantly negative findings although a large tumor could be palpated in the cecum. The operation showed that the tumor was of tuberculous origin. Koopman reports a case the counterpart of this, only that the large tuberculous tumor in the [illegible] s accompanied by a strongly positive benzidin reaction in the stools, even with the patient in bed on a milk diet. Boas' assertion that occult blood testifies in favor of cancer and against tuberculosis is thus shown to be erroneous. Koopman noticed that whenever the tests for soluble albumin in the stools were positive, occult blood was always found. He suggests that the whole benzidin reaction may be merely an indication of the presence of dissolved albumin—the blood reaction merely a special form of it. On the whole, Koopman reiterates, the significance of occult blood in the stools is slight. It is more often liable to lead to false than to correct conclusions. A number of writers recently have warned that the Wagner reaction is unreliable, but Boas' chief data were based on this. The spectroscopic method, according to Snapper, seems to promise greater reliability.

Hydrocyanic Acid as Antidote for Digalen and Veratrin.—Bastert reports research on frogs' hearts which demonstrated that when the heart action had been arrested by toxic action from digalen or veratrin, the heart could be resuscitated and started to beating again by the action of hydrocyanic acid. The reverse also occurs, digalen or veratrin resuscitating the heart arrested with the hydrocyanic acid. The resuscitation, however, is not permanent, the heart action becoming arrested again sooner or later. Other phenomena observed were that the heart poisoned with digalen to its complete arrest, started to beat again when the pressure was raised, while with hydrocyanic acid arrest, it started to beat again only when the pressure was lowered. The hydrocyanic acid arrests the heart in diastole, and overcomes the arrest when it occurs in systole. It thus acts like the potassium in Ringer's fluid. The tracings from ten different tests are reproduced in detail.

Vincent's Angina.—The severe ulceromembranous sore throat had developed in a woman already much debilitated by two years of lymphatic leukemia. It was known that she was unable to stand arsphenamin, so this was applied only locally. It had a powerful curative action on the lesions in the throat and mouth, but it proved impossible, even for the specialist, to apply it as effectually in the nose, and the patient died. The malignant course was evidently due to the underlying leukemia.

Uterine Cancers That Do Not Bleed.—Boerma reports a case of the infiltrating form of uterine cancer in which pain in one thigh was the only symptom. There was no discharge, no bleeding; the cervix felt smooth but unusually hard. Only examination in general anesthesia revealed the inoperable condition. Another woman, 70 years old, complained of persisting pain in abdomen and lumbar region, but was apparently in good health otherwise, no bleeding, no discharge, but an inoperable tumor was found in the cervix.

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November, 1918, **79**, No. 11

*Purpura. C. Johannessen.—p. 1209.
*Treatment of Hemoptysis. N. Lunde.—p. 1253.
Vagotony and Its Clinical Importance. L. Dedichen.—p. 1260.

Purpura.—Johannessen reviews the literature on purpura since Werlhof's first description in 1775 of a mild form of purpura to the recent descriptions of the form with joint and intestinal manifestations. In the mild group the blood platelets disappear more or less completely from the blood while this does not occur in the second group. The purpura in this second group is always associated with some infection, and it seems to be of an anaphylactoid nature. The purpura may be of a chronic intermittent type, with joint lesions, urticaria, colic and intestinal hemorrhage or albuminuria and hemorrhagic nephritis, or polyneuritis, or it may be simple purpura. Or the purpura may be of an acute or subacute infectious type or it may run a fulminating course, Henoch's purpura fulminans. Johannessen reports the details of some cases representing each of these different types. The prognosis is favorable only in the chronic intermittent forms, and not in all of these, especially as the primary infection is liable to entail valvular or kidney trouble or debility that invites tuberculosis.

Purpura displays a heredity and familial tendency. Children with the exudative diathesis or tuberculous taint are peculiarly subject to it, so that improvement of conditions in this respect aids in prophylaxis. Salicylic medication is called for in every case of rheumatic purpura, and it should be pushed. Recent research has confirmed anew that the coagulation time is normal. The trouble seems to be some paralysis of the capillary elements, the result being a notable vasodilatation. This dilatation of the capillaries allows the blood to seep through, and calcium counteracts this vasodilatation. He found this extremely effectual in a recent case of melena neonatorum, which is evidently a manifestation of purpura. The child was born one month before term and the second day it passed pure blood with the meconium. In the course of the night it was given 6 gm. calcium acetate powder (*acet. calcic. pulv.*) and there was no visible blood in the stools thereafter. The blood count showed 2,040,000 reds and 6,160 whites with 300 blood plates to each 2,010 reds. A subcutaneous injection of 10 c.c. of a 10 per cent. solution of gelatin in 40 c.c. of saline was also given and 0.12 gm. pulverized camphor by the mouth. The gelatin injection was repeated the following day. The calcium was suspended the third day and the child rapidly recuperated and is now in the best of health.

Epinephrin is also useful to arrest the paralysis of the contractile elements of the sympathetic nerve terminals, which is a feature of anaphylactoid purpura. From 0.1 to 0.3 c.c. of the 1 per thousand solution can be injected subcutaneously several times a day. It is ineffectual by the mouth. Administration of epinephrin conforms also to Friedrichsen's theory of the nature of purpura. With abdominal purpura the colic pains may be agonizing. Dieting does not help and warm applications give little relief. Atropin paralyzes the irritated terminals of the vagus nerve in the intestines and thus has a sedative action. He gives it by the mouth or subcutaneously in a 1 per thousand solution.

A foreign albumin seems the most effectual of all treatment for anaphylactoid purpura. Especially gelatin, which is nothing but a heterogenous albumin. It is most active given subcutaneously, about 10 c.c. of a 10 per cent. solution, repeated eventually. It can be given in enemas but is far less effectual. Older children and adults can take it in the form of a pudding. Heubner gives it in a 15 per cent. solution with syrup of raspberry, a tablespoonful every second hour. Serum has proved effectual also but peptone seems to answer the same purpose and is more readily available. Given in doses of from 4 to 10 c.c. of a mixture of 5 parts peptone and 0.5 parts sodium chlorid with 100 parts distilled water, the effect seemed to be completely analogous to that of serum treatment and diphtheria antitoxin. Glanzmann explains its action as a desensitization, an antianaphylaxis from the saturation of the antibody by the peptone. It is by the same mechanism that a small preliminary injection wards off the anaphylactic shock when the main injection is given. In the next instalment the hemorrhagic type of purpura will be analyzed.

Treatment of Hemoptysis.—Lunde states that repose and tranquilizing measures proved all that was necessary in thirteen of twenty-four cases of hemoptysis, but in the others more active measures were required. He found that the hemorrhage stopped at once after injection of 3 c.c. of 20 per cent. camphorated oil, with no other measures except in two cases the limbs were wound to expel the blood as the repeated bleeding had been so profuse. In these cases some small artery must have ruptured. The camphorated oil injection also arrested the hemorrhage in a case of severe epistaxis, and this without tamponing. There was a slight renewal of the epistaxis two and five weeks later. Alexander has advocated camphorated oil for hemoptysis, and Weismayr has confirmed its efficacy, but Lunde discovered it for himself when injecting camphorated oil for another purpose. While attempting to make an artificial pneumothorax, the patient collapsed. The camphorated oil cured the collapse and with it the tendency to bleeding from the lungs during the six months to date. Without this direct and convincing experience he would never have ventured to inject this heart tonic for this purpose. In every one of the eleven patients thus treated the hemorrhage was arrested in a few minutes just as if a finger had been pressed on the bleeding point. He theorizes to explain its action, which seems to be of a dual or manifold nature.

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HEMOLYTIC STREPTOCOCCI

WITH SPECIAL REFERENCE TO THEIR RÔLE IN ACUTE RESPIRATORY INFECTIONS *

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CHICAGO

It seems opportune to discuss the subject of hemolytic streptococci at this time, because during and following such a serious respiratory epidemic as is at present prevailing, these streptococci in one way or another play an important rôle. So extensive is the subject that I can only select points here and there for discussion, and even of these I must speak in more or less general terms.

DEFINITION

By "hemolytic streptococci" I mean the streptococci which on plain blood agar plates cause a wide, clear, complete zone of hemolysis about a small, central gray colony. This zone is usually from 2 to 4 mm. across, but under varying conditions may be less or considerably more. Broth cultures of these streptococci, when added to suspensions of red corpuscles, will hemolyze them in vitro, a test which is also commonly used. This term does not include those common streptococci which, especially in dilute blood mediums or after several days, may cause atypical, colored or incomplete zones of hemolysis. Furthermore, it should be understood that the hemolytic streptococci do not constitute a single variety or genus. Hemolysis is a property common to a number of kinds of streptococci that differ decidedly in other respects.

CLASSIFICATION

With the appearance of Schottmüller's[1] classification in 1903, the old term *Streptococcus pyogenes* was discarded by many for the terms *S. viridans*, *S. hemolyticus* and *S. mucosus*, the three varieties into which streptococci were subdivided, largely on the basis of their reaction and appearance on blood mediums.

Only a few months later, indeed, almost simultaneously with the work of Schottmüller, similar observations and classifications were made and used in this country by Weaver, Hektoen, Ruediger, Rosenow and others. Since then, especially in the Central West, this method of study has been greatly extended and of late years has come into general use in the study of this group of bacteria.

I shall not discuss in detail the various classifications but only refer briefly to those based largely on hemolysis. Holman[2] first used it for classifying streptococci in conjunction with their fermentative reactions. On this basis he recognizes eight different varieties of hemolytic streptococci, to each of which he has given a specific name. Smith and Brown[3] divided hemolytic streptococci into an alpha and a beta type on the basis largely of the degree of hemolysis. The former causes a narrow zone of incomplete hemolysis about the colony, whereas the beta type causes a clear, wide zone of hemolysis, which is complete under and in close proximity to the central colony. It is a useful point for differential purposes. In Andrewes and Horder's[4] classification, two of their varieties, *S. pyogenes* and *S. anginosus*, are hemolytic.

Everything considered, the classification of Holman is perhaps the most useful and convenient, especially when dealing with pathogenic streptococci, and I myself prefer it. It cannot, however, be considered satisfactory in every respect. I have had occasion to study the streptococci in milk, and find especially in nonpasteurized milk streptococci forming wide, clear zones of hemolysis, some of which ferment lactose and salicin but not mannite. According to Holman's scheme, such organisms would fall into his group of *S. pyogenes*. In other respects, however, they are very different from *S. pyogenes*. They rapidly acidify and coagulate milk even at 20 C., and are on the whole much more heat resistant than the pathogenic streptococci. Morphologically, they are more elongated, and in milk tend to grow as diplococci and short chains. For rabbits, and no doubt human beings, these hemolytic milk streptococci have little or no pathogenicity, whereas *S. pyogenes*, as a group, is highly virulent. Indeed, this milk streptococcus is quite like ordinary *Streptococcus lacticus* in all respects except hemolysis, and I prefer to speak of it as a hemolytic *Streptococcus lacticus*. Yet should we apply Holman's classification, we should place these common milk cocci with a highly virulent group, *S. pyogenes*, with which they have few properties in common.

One point may be appropriately emphasized here: Often, especially in current literature, the term *Streptococcus hemolyticus* is used. Since we know that there are at least several kinds of streptococci that cause hemolysis, the use of the binominal *S. hemolyticus* is misleading in that it conveys the idea that there is one definite streptococcus designated thereby, which is not true. Holman's scheme of classification and nomenclature is here helpful in that he has differentiated and named at least some of the several hemolytic varieties.

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[1] Schottmüller: München. med. Wchnschr. 50: 849, 1903.

[2] Holman: J. M. Res. 34: 377, 1916.

[3] Smith and Brown: J. M. Res. 31: 455, 1914.

[4] Andrewes and Horder: Lancet 2: 706, 1906.

Since there are several hemolytic streptococci, I shall not attempt to discuss them all, but will limit myself to those streptococci that are pathogenic for man, or at least potentially so, and will refer to them as pathogenic hemolytic streptococci, understanding that here are included several different varieties, though possessing many important properties in common. They are the organisms commonly referred to as *S. hemolyticus* and roughly also as *S. pyogenes*.

Morphologically, they are spherical or slightly oval, and form definite chains, often quite long, though in the tissues if rapidly multiplying they are frequently seen in pairs or short chains. In the chain, pairing is noted often, though not to the extent seen in pneumococci or in the green streptococci. Their reaction on sugars is varied and, as we have already seen, on this basis they may be classified. Many strains ferment lactose and salicin; a few ferment mannite.

POISONOUS PRODUCTS

Our knowledge of their poisonous products is meager, though no doubt they produce highly toxic bodies. Their hemolytic activity is caused by a hemolysin called streptolysin, and is produced both in vivo and in vitro. According to Ruediger,[5] who studied this substance in detail, it has the structure of a true soluble toxin with a haptophore and a toxophore group. On injection into animals, it gives rise to a specific antibody (Besredka). In severe infections, hemolysis may occur in the vessels in animals and in man with resulting hemoglobinemia. Streptolysin, however, does not appear to be the most important poison produced, since it is not highly toxic and its production does not parallel the intensity of the infection. Nor are the important lesions produced of such a nature as to lead one to think they are caused by the hemolysin. Hemolytic streptococci are not dangerous primarily because they are hemolytic. Some nonhemolytic streptococci are far more dangerous than the hemolytic varieties.

Recently Clark and Felton[6] reported that by growing hemolytic streptococci (isolated from Army camp bronchopneumonias) in rabbit's blood diluted with Locke's solution they obtained a filtrable toxic product which kills rabbits at times in doses of 0.5 c.c. per kilogram intravenously. Its formation is in some way dependent on hemoglobin, but the poison is nonhemolytic in vivo and in vitro. They report that its introduction into a rabbit will immunize both against the poison and against living streptococci. I am not aware that this work has been confirmed. If repeated successfully, it will make an important step in our knowledge of these organisms.

Filtrates of old cultures are only very slightly toxic, and the dead bodies of streptococci either highly or slightly virulent, killed in various ways, can be injected into animals and man in relatively large doses without marked toxic symptoms. They behave in this respect quite like numerous other pathogenic bacteria whose poison lies closely bound with the bacterial cell and to which we apply the term "endotoxin." Practically nothing is known about it.

VIRULENCE

The aggressive and invasive properties of streptococci deserve first consideration, for under certain conditions no other organism known manifests such varied and extensive activities. Aggressins in the sense of Bail have been described, but how they act is not certain. I am inclined more and more to regard the existence of a capsular substance about these streptococci as of considerable, perhaps fundamental, significance. We know very well the virulence of *Streptococcus* or *Pneumococcus mucosus*. I have tested many strains, and all, even those of relatively low virulence, if injected into animals, can be made to reveal a capsule. The highly virulent streptococci, those, for example, from milk epidemics, readily show a capsule in sputum, exudate or blood. Generally, the more virulent the organism, the more distinct is the capsule and the less susceptible are the cocci to phagocytosis. In the streptopneumococcus group, many facts point to a parallelism between capsule substance and virulence.

The virulence of hemolytic streptococci seems to vary markedly for man. This property is so intimately bound up with invasive properties and with the resistance and immunity of the host that analysis of this factor is difficult. In the human being, marked differences in the intensity of infection are commonly observed, though caused by streptococci which, when isolated, are apparently alike, and on animal inoculation show little difference in virulence. To sum up many observations on the virulence of different strains for rabbits, one practically never encounters a hemolytic streptococcus that will kill a 1,000 gm. rabbit in doses of less than 0.5 c.c. of a twenty-four hour serum broth culture intravenously. Usually the highly virulent human strains require larger doses (1 c.c.) to kill or to cause joint and other lesions in rabbits. Guinea-pigs are distinctly less susceptible than rabbits. On the other hand, hemolytic streptococci, with the exception of the hemolytic milk streptococci of the lactic acid type referred to above, usually will kill or cause lesions in rabbits in doses of from 2 to 3 c.c. in 1,000 gm. animals. There are exceptions to this, some strains requiring larger doses. On the whole, however, one may say that the virulence of hemolytic streptococci for rabbits is decidedly higher than that of the green producing streptococci. Highly virulent (as determined by rabbit injection) strains of streptococci may be obtained from normal persons, and less virulent strains at times from severe human infections; but in general the more virulent strains for animals come from virulent human infections. By animal passage it is possible to enhance the virulence of hemolytic streptococci to some extent, though the range is decidedly limited. I have never observed it consistently higher than 0.5 c.c. of serum broth culture per 1,000 gm. rabbit. The organism is therefore in this respect decidedly different from the pneumococcus. On artificial mediums, including blood agar, the virulence decreases materially though slowly. My hemolytic streptococci from the milk epidemic of 1910, some of which then killed rabbits in doses of 0.5 c.c., will not at present kill in doses of 4 or 5 c.c. intravenously. For mice, streptococci appear to be more highly virulent, and may by several passages acquire aggressive properties for this animal comparable to pneumococci.

ANTIBODIES

As to antibody formation in animals and in man it may be stated from the work of Hektoen, Tunnicliff, Ruediger and others that definte specific opsonins appear both after various streptococcal diseases and after artificial inoculation with dead bacteria. These appear to be the most important antibodies formed, and so far as is known the self limitation of hemolytic streptococcal infections probably depends on them. Specific agglutinins have been shown by various observers to appear; but they are inconstant, low in titer, and more or less specific for the homologous strain. Smith and Brown[3] and Krumwiede[7] have found them useful in identifying strains suspected of causing epidemics of sore throat. Kinsella[8] and others have noted the production of complement fixing bodies in immunized animals, and use this for purposes of classification. On this basis the hemolytic streptococci from man seem to form a homogenous group. Antibodies for streptolysin and a possible toxic filtrate have already been referred to.

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[5] Ruediger, G. F.: The Production and Nature of Streptocolysin, J. A. M. A. **41**: 962 (Oct. 17) 1903.

[6] Clark, A. H., and Felton, L. D.: A Filtrable Toxic Product of the Hemolytic Streptococcus, J. A. M. A. **71**: 1048 (Sept. 28) 1918.

IMMUNITY AND RESISTANCE

Many animals, as the guinea-pig, the rat and the bird, are naturally more or less immune to streptococci. Others, as man, the horse, the cow, the mouse and the rabbit, are more susceptible to both natural and experimental infection. Acquired immunity following a natural streptococcus infection, if it occurs at all, is slight and of short duration. Many diseases caused by streptococci, as erysipelas, pneumonia and sore throat, are prone to second attacks, though the attacks are usually separated by periods of months or at least of several weeks. Experimentally, animals may be immunized. Moore[9] has shown that rabbits may be immunized against homologous strains by prophylactic injections of dead hemolytic streptococci. This immunity persisted over forty days, at least in one instance, and seemed to be dependent on the production of opsonins.[10] Concentrated antistreptococcus serum did not exhibit any protective value. The antistreptococcus serums of Marmorek, Aronsen, Moser and of many others that have come on the market in recent years have been distinctly disappointing for both prophylactic and curative purposes.

The aggressive properties of the streptococcus, and the immunizing and resisting powers of the patient, are no doubt intimately related, making it extremely difficult to analyze satisfactorily the various factors involved. The differences between the aggressive or virulent property of strains of hemolytic streptococci are not great, at least according to what our various methods of study reveal. So, too, immunity reactions on the part of the host after either natural or experimental infection are not especially intense or active. There is little doubt that these factors, however, do play an important rôle in determining the course of infection. To illustrate: I observed a small streptococcus infection on the finger of a person following a necropsy. It caused a rise in temperature of 2 or 3 degrees, a leukocytosis of 12,000, malaise, headache and a chilly sensation. A small drop of pus was expressed through an opening near the finger nail, and in thirty minutes the temperature had returned to normal and all distress was relieved. In the pus were a moderate number of hemolytic streptococci. At the same time I was observing a man, apparently feeling little worse and who later recovered, with a streptococcus empyema and more than a liter of pus in his thorax, every smear of which revealed hundreds of streptococci. In morphology, in culture, and in virulence for animals, the hemolytic streptococci from these two cases could not be distinguished; and neither strain could be distinguished from certain hemolytic streptococci cultivated from normal tonsils.

PATHOGENESIS

For Animals.—Many animals are prone to natural infections with hemolytic streptococci. The horse seems peculiarly susceptible, and a variety of infections both acute and chronic result. Mathers,[11] two years ago, studied the interesting disease equine influenza, or shipping fever, in horses, and found the cause to be a hemolytic streptococcus. Various organs of the body, but especially the respiratory passages, were attacked. The streptococcus was culturally and morphologically quite like the hemolytic streptococcus commonly found in human disease. However, there is no evidence that it is dangerous or virulent for man, and no causal relation between epidemics in horses with epidemics or even individual cases in man could be detected.

In cows, streptococcus infections, especially of the udder, are common. Many are caused by hemolytic streptococci, an occasional strain of which is evidently of human origin. These streptococci may be virulent for man, and, being disseminated through the milk, may be responsible for epidemics of streptococcus sore throats, several of which have now been observed in the United States and many more in Europe. Experimentally, it has been shown[12] that hemolytic streptococci of human origin, when planted on the teat, especially if it has been abraded, may ascend the ducts and cause a long enduring infection in the udder of the cow. The udder may show extremely little evidence of disease, and the milk grossly may be quite normal. Microscopically, however, the leukocytes are greatly increased, and the virulent streptococci are shed in the milk in large numbers for weeks or months. Apparently only a few of the hemolytic streptococci found in milk and causing mastitis in cows are dangerous to man. Jones[13] has compared twenty-eight strains of hemolytic streptococci from the udders of infected cows, and has found that though they are typical hemolyzers, they are of low virulence for rabbits. All except three were specifically agglutinated by antiserum prepared from one strain. Three strains of hemolytic streptococci of human origin were not agglutinated by this antiserum.

For Man.—The pathogenesis of hemolytic streptococci for man forms one of the most important chapters in human medicine, since every department and specialty meet and must handle this problem constantly and from various standpoints. Of the skin diseases, erysipelas is one of the definite infections caused by this organism. The streptococcus of erysipelas has been considered specific for this disease. We do not yet know that it is not, but experimentally erysipelas has been produced by streptococci from other sources, and erysipelas streptococci have long been known to cause puerperal sepsis. Hemolytic streptococci cause or are often associated with other lesions of the skin.

Sore throat, sporadic and epidemic in character, is commonly caused by hemolytic streptococci. The epi-

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[7] Krumwiede: J. M. Res. **33**: 231, 1915.

[8] Kinsella: J. Exper. Med. **28**: 169, 1918.

[9] Moore: Jour. Infect. Dis. **15**: 215, 1914.

[10] This may be considered as a theoretical basis for prophylactic vaccination in man against hemolytic streptococci. However, the liability to second attacks of streptococcus infections in general indicates that if any immunity at all is established it is probably of short duration—a few weeks at most.

[11] Mathers, George: Proc. Inst. Med., Chicago **1**: 84, 1917.

[12] Davis and Capps: J. Infect. Dis. **15**: 135, 1914.

[13] Jones, F. S.: J. Exper. Med. **28**: 253, 1918.

Since there are several hemolytic streptococci, I shall not attempt to discuss them all, but will limit myself to those streptococci that are pathogenic for man, or at least potentially so, and will refer to them as pathogenic hemolytic streptococci, understanding that here are included several different varieties, though possessing many important properties in common. They are the organisms commonly referred to as *S. hemolyticus* and roughly also as *S. pyogenes*.

Morphologically, they are spherical or slightly oval, and form definite chains, often quite long, though in the tissues if rapidly multiplying they are frequently seen in pairs or short chains. In the chain, pairing is noted often, though not to the extent seen in pneumococci or in the green streptococci. Their reaction on sugars is varied and, as we have already seen, on this basis they may be classified. Many strains ferment lactose and salicin; a few ferment mannite.

POISONOUS PRODUCTS

Our knowledge of their poisonous products is meager, though no doubt they produce highly toxic bodies. Their hemolytic activity is caused by a hemolysin called streptolysin, and is produced both in vivo and in vitro. According to Ruediger,[5] who studied this substance in detail, it has the structure of a true soluble toxin with a haptophore and a toxophore group. On injection into animals, it gives rise to a specific antibody (Besredka). In severe infections, hemolysis may occur in the vessels in animals and in man with resulting hemoglobinemia. Streptolysin, however, does not appear to be the most important poison produced, since it is not highly toxic and its production does not parallel the intensity of the infection. Nor are the important lesions produced of such a nature as to lead one to think they are caused by the hemolysin. Hemolytic streptococci are not dangerous primarily because they are hemolytic. Some nonhemolytic streptococci are far more dangerous than the hemolytic varieties.

Recently Clark and Felton[6] reported that by growing hemolytic streptococci (isolated from Army camp bronchopneumonias) in rabbit's blood diluted with Locke's solution they obtained a filtrable toxic product which kills rabbits at times in doses of 0.5 c.c. per kilogram intravenously. Its formation is in some way dependent on hemoglobin, but the poison is nonhemolytic in vivo and in vitro. They report that its introduction into a rabbit will immunize both against the poison and against living streptococci. I am not aware that this work has been confirmed. If repeated successfully, it will make an important step in our knowledge of these organisms.

Filtrates of old cultures are only very slightly toxic, and the dead bodies of streptococci either highly or slightly virulent, killed in various ways, can be injected into animals and man in relatively large doses without marked toxic symptoms. They behave in this respect quite like numerous other pathogenic bacteria whose poison lies closely bound with the bacterial cell and to which we apply the term "endotoxin." Practically nothing is known about it.

VIRULENCE

The aggressive and invasive properties of streptococci deserve first consideration, for under certain conditions no other organism known manifests such varied and extensive activities. Aggressins in the sense of Bail have been described, but how they act is not certain. I am inclined more and more to regard the existence of a capsular substance about these streptococci as of considerable, perhaps fundamental, significance. We know very well the virulence of *Streptococcus* or *Pneumococcus mucosus*. I have tested many strains, and all, even those of relatively low virulence, if injected into animals, can be made to reveal a capsule. The highly virulent streptococci, those, for example, from milk epidemics, readily show a capsule in sputum, exudate or blood. Generally, the more virulent the organism, the more distinct is the capsule and the less susceptible are the cocci to phagocytosis. In the streptopneumococcus group, many facts point to a parallelism between capsule substance and virulence.

The virulence of hemolytic streptococci seems to vary markedly for man. This property is so intimately bound up with invasive properties and with the resistance and immunity of the host that analysis of this factor is difficult. In the human being, marked differences in the intensity of infection are commonly observed, though caused by streptococci which, when isolated, are apparently alike, and on animal inoculation show little difference in virulence. To sum up many observations on the virulence of different strains for rabbits, one practically never encounters a hemolytic streptococcus that will kill a 1,000 gm. rabbit in doses of less than 0.5 c.c. of a twenty-four hour serum broth culture intravenously. Usually the highly virulent human strains require larger doses (1 c.c.) to kill or to cause joint and other lesions in rabbits. Guinea-pigs are distinctly less susceptible than rabbits. On the other hand, hemolytic streptococci, with the exception of the hemolytic milk streptococci of the lactic acid type referred to above, usually will kill or cause lesions in rabbits in doses of from 2 to 3 c.c. in 1,000 gm. animals. There are exceptions to this, some strains requiring larger doses. On the whole, however, one may say that the virulence of hemolytic streptococci for rabbits is decidedly higher than that of the green producing streptococci. Highly virulent (as determined by rabbit injection) strains of streptococci may be obtained from normal persons, and less virulent strains at times from severe human infections; but in general the more virulent strains for animals come from virulent human infections. By animal passage it is possible to enhance the virulence of hemolytic streptococci to some extent, though the range is decidedly limited. I have never observed it consistently higher than 0.5 c.c. of serum broth culture per 1,000 gm. rabbit. The organism is therefore in this respect decidedly different from the pneumococcus. On artificial mediums, including blood agar, the virulence decreases materially though slowly. My hemolytic streptococci from the milk epidemic of 1910, some of which then killed rabbits in doses of 0.5 c.c., will not at present kill in doses of 4 or 5 c.c. intravenously. For mice, streptococci appear to be more highly virulent, and may by several passages acquire aggressive properties for this animal comparable to pneumococci.

ANTIBODIES

As to antibody formation in animals and in man it may be stated from the work of Hektoen, Tunnicliff, Ruediger and others that defnite specific opsonins appear both after various streptococcal diseases and being, possibly soon or during the coming winter acquire properties that will enable them to cause an epidemic of primary streptococcal pneumonia comparable to those of a year ago? I am not aware that any of the now recurring epidemics of influenza are of this character; but we should be on our guard against such an event.

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[5] Ruediger, G. F.: The Production and Nature of Streptocolysin, J. A. M. A. **41**: 962 (Oct. 17) 1903.

[6] Clark, A. H., and Felton, L. D.: A Filtrable Toxic Product of the Hemolytic Streptococcus, J. A. M. A. **71**: 1048 (Sept. 28) 1918.

DISTRIBUTION OF HEMOLYTIC STREPTOCOCCI IN THE HUMAN BODY

In 1912, in studying the bacteriology of the tonsils from various diseases, including arthritis, nephritis and myocarditis, I[20] was struck with the common occurrence of typical hemolytic streptococci in the crypts, often in pure culture, whereas on the surface of the same tonsils they were often few or absent, while the green-producing cocci predominated. In forty-eight cases of the foregoing diseases the hemolytic streptococcus was predominant or abundant in forty-five, or 94 per cent. In a series of sixty-one pairs of tonsils, which were extirpated mostly from children for various reasons, chiefly hypertrophy, many appeared quite normal, and hemolytic streptococci were found practically as often, namely, in fifty-five, or 90 per cent. In subsequent work the cultivation[21] of numerous tonsils from a variety of diseases has convinced me that the crypts of the tonsils are in almost all cases the habitat of many hemolytic streptococci, often almost pure. Pilot[22] has recently investigated this matter and carefully compared the tonsillar crypt flora with throat swab and tonsil surface cultures. Briefly, in 100 cases of ordinary hypertrophy without inflammation, the pharynx was positive for hemolytic streptococci in 43 per cent. and the tonsil surface in 61 per cent., and in these the hemolytic colonies numbered less than 10 per cent. of the total number of colonies. In the crypts of the same tonsils after extirpation the hemolytic streptococci were found in 97 per cent of the tonsils, and in most of these were greatly predominant. Furthermore, Pilot found that in twenty-four normal persons, cultures from the surface of tonsils revealed hemolytic streptococci in 58 per cent., usually not predominant. In nineteen persons without tonsils, cultures from the pharynx and tonsillar region yielded hemolytic streptococci in only three, or 15 per cent. The recent work of Nichols and Bryan[23] in the United States Army is quite in accord with these data and indicates that the crypts of the tonsils are a common habitat for hemolytic streptococci.

I will call attention also to the very common occurrence of the actinomyces-like granules[24] in the tonsils of nearly every one at some time. In these granules, hemolytic streptococci, as well as nonhemolytic streptococci with rather marked anaerobic properties, appear sometimes in large numbers and in a high proportion of instances.

The hemolytic streptococci found in tonsils and in throats of apparently normal persons seem to be typical in every respect. For rabbits many of them are distinctly pathogenic, as pathogenic as many strains from sore throats or from abscesses. According to Holman's classification, they would fall chiefly into the *S. pyogenes* and *S. anginosus* groups.

I know of no other anatomic structure or location in the body that so consistently harbors hemolytic streptococci as do the tonsillar crypts. In the nose they are rare. I have never found them persistently present in a normal nasal mucosa, and their presence there means almost surely an infection, usually an infected sinus. In the pharynx of normal persons, as we have seen, they are found roughly in between 50 and 60 per cent., but in the absence of inflammation not in large numbers. I raise the question as to the possibility of the tonsil crypts being the chief feeding focus of hemolytic streptococci for the throat and the respiratory passages. In a few cases in which I have examined adenoids I am not convinced that they are an important habitat for streptococci, though they may be found in moderate numbers in the hypertrophied tissues. About the mouth and teeth, infected foci may commonly be feeders of streptococci for the throat; but the normal gums do not harbor them in large numbers. The skin of persons who bathe regularly rarely harbors hemolytic streptococci. Schachter[25] found no hemolytic streptococci on the bodies of thirty-eight clean persons; whereas he isolated hemolytic streptococci from the skin eight times from eighty-nine filthy persons, usually from the hairy parts of the body. They were not numerous, but were typical and virulent for rabbits. The source of such organisms may very well be the buccal secretions. Hemolytic streptococci, when placed experimentally on the human skin, usually disappear in a few hours and are readily removed by washing.

The gastro-intestinal tract seems to be quite free from hemolytic streptococci, at least normally. I have recently had occasion to study this point both experimentally and in man, being induced to do this to determine the fate of the hemolytic streptococci that are swallowed almost constantly by normal persons and by those infected with the numerous streptococcal respiratory diseases. Examination of fifty-three stools from a series of persons, many of whom were known to have hemolytic streptococci in their throats, did not reveal a single colony in any case. Stools from several scarlet fever patients showed no hemolytic streptococci. Three rabbits were given by stomach tube from 10 to 20 c.c. of a culture of virulent hemolytic streptococci every day or every other day for one month. The rabbits' stools were examined from time to time, and with one exception were always negative for these streptococci. The stomach and intestinal contents of such rabbits and also rabbits suffering with streptococcus arthritis were likewise invariably free. Hemolytic streptococci are very sensitive to the acids of the stomach or to free hydrochloric acid. When placed in the stomach contents of human beings or rabbits even in large numbers, they are all dead in from two to five minutes. Strains vary somewhat, but generally they are killed in two hundred and fifty-sixth normal (0.012 per cent.) hydrochloric acid in two minutes. They will live, however, in the intestinal contents of feces, at least for several days. From the foregoing experiments and observations we may conclude, I think, that ordinarily hemolytic streptococci, though swallowed in large numbers, are quickly destroyed in the gastro-intestinal tract, and that the feces from infected persons are not a source of danger in spreading the infection. Some preliminary work in the laboratory on the appendix indicates that it is not a common habitat for hemolytic streptococci.

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[20] Davis, D. J.: J. Infect. Dis. **10**: 148, 1912.

[21] When cultures are made, the tonsil is carefully incised with a sterile knife, and material from the depths of the crypts is obtained with a platinum loop. Surface contaminations and laceration of the organ in removal will decidedly increase green-producing streptococci in the cultures.

[22] Pilot: Unpublished observations.

[23] Nichols, H. J., and Bryan, J. H.: The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers, J. A. M. A. **71**: 1813 (Nov. 16) 1918.

[24] Pilot and Davis: J. Infect. Dis. **23**: 562, 1918.

[25] Schachter: Proc. Chicago Path. Soc. **10**: 301, 1918.

RÔLE OF HEMOLYTIC STREPTOCOCCI AS PRIMARY AND SECONDARY INVADERS

Summing up these observations on the distribution of hemolytic streptococci, the facts point strongly to the crypts of the tonsils as being the main and in a sense a normal habitat of these organisms in the human body. Perhaps they are as normal to the tonsil crypts as is *Streptococcus viridans* to the buccal mucosa, *Staphylococcus albus* to the skin, or the colon bacillus to the intestine. From here they may be disseminated to adjacent tissues, ready possibly to take advantage of certain conditions, especially diseases of the respiratory tract, and give rise to secondary infections of a most serious nature.

The question arises as to whether or not persons are commonly or usually infected with their own hemolytic streptococci, or are the invading streptococci in infected persons of foreign origin? No doubt the latter statement is often true, as seems clearly proved in the case of sore throat epidemics of milk origin. Furthermore, many facts point to the common dissemination of streptococci by means of droplet infection. The route of infection is not so clear, however, in secondary streptococcus infections following other diseases. In the common terminal infections so often due to this organism there is little doubt that the individual is killed by his own streptococci.[26] It has been pointed out that such streptococci are as virulent as epidemic streptococci for man, especially after growing in the body for a time. It would seem reasonable to assume, as has been assumed by some in connection with the streptococcus empyemas of last year, that individuals are being infected from time to time with their own streptococci, especially following the contagious diseases, and that by this process the streptococci become more and more virulent and aggressive, reaching a point ultimately at which the small doses contained in infected droplets or in other vehicles are sufficient to transmit the disease to a normal person. Thus a secondary invader may become transformed into a dangerous primary infective agent.

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[26] Richie, D. G., and Goehring, Carl: J. M. Res. 38:421 (July) 1918.

Nonworkers Should Hibernate.—A correspondent in the *British Medical Journal* (February 26) advocates as a means of food saving a modified hibernation on the part of nonworkers. He says that, roughly, five sixths of food values go to producing and maintaining animal heat, and one sixth to the production of physical and mental energy. Of every 100 calories of heat produced within the body 80.1 per cent. is lost by radiation and conduction; 14.7 by evaporation; 2.6 per cent. in heating food and drink consumed, and 2.6 per cent. in heating inspired air. Lying in bed till late in the day by nonworkers, he says, will clearly reduce the heat loss and output of energy, with consequent saving in food requirement. He therefore says the idle poor, the rich, infirm and insane persons should be compelled to remain in bed, warm and at rest till noon daily.

THE IMPORTANCE OF THE LOUSE PROBLEM *

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The demobilization of armies is usually associated with the introduction of epidemic diseases into civil communities. There is great possibility of louse-borne diseases gaining entrance into the United States unless necessary measures are taken to exclude them. The question as to whether epidemic influenza could have been excluded from this country remains an open one; but it can be said with a certain degree of certainty, that with the application of proper measures, epidemic typhus fever, trench fever and relapsing fever can be excluded. In view of the fact that the louse has spread more disease in the present war than all the other insects combined, its importance as a disease carrier can be appreciated. It is important, therefore, that proper facilities be provided to delouse all returning troops, that the public health authorities provide measures for the delousing of immigrants, and that physicians be on the alert for the possible occurrence of louse-borne diseases, leading to the early isolation of those affected.

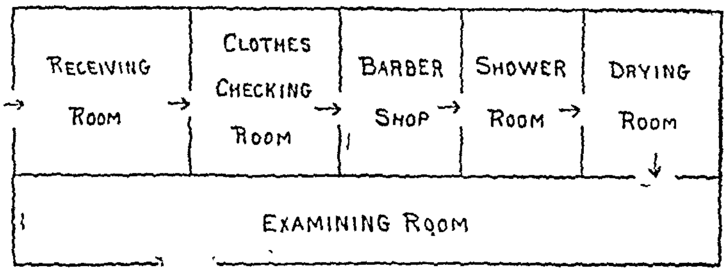

Fig. 1.—Scheme for delousing.

Vermin infestation is now prevalent throughout Europe, the annoyance of the "cootie" being well known to all American soldiers. Coincident with this widespread vermin infestation exists the impoverishment of most European peoples. These conditions usually precede a typhus fever epidemic. This fact is often related in the history of typhus fever. Epidemic typhus fever has already made its appearance in European countries, and with the advent of winter, when the disease is most common, we have much to fear from a general typhus fever epidemic. The Allied troops are coming more and more in contact with the Russian and Balkan peoples, and the spread of this disease from army to army and then from country to country need be anticipated. For these reasons it is believed that due consideration should be given this problem, and proper measures be employed to exclude these diseases from the United States. It is important to point out that endemic typhus fever (Brill's disease) is a disease not uncommon in this country; and with the introduction of vermin, we may fear a greater number of cases and a possible increase in its virulence.

The eradication of vermin infestation calls for strict adherence to a certain definite plan of treatment. It has been said that vermin infestation in European armies started from a few infested individuals, and owing to the close association of the troops, the infestation rapidly spread. The escape of one vermin-infested individual into a community may cause considerable infestation. A vermin-infested man, then, should be regarded in the same light in which one regards a meningococcus carrier: he is a danger to the community until his condition is cleared up.

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FUNDAMENTAL PRINCIPLES

In order that the best results may be obtained, there are certain fundamental principles regarding the subject of delousing that must be taken into consideration.

1. The clothes louse (*Pediculus humanus-corporis*) transmits typhus fever, trench fever and relapsing fever. These diseases are not transmitted by the bite of the louse but by a virus which is contained in the excreta. This virus gains entrance through the puncture wound made by the louse while sucking, or is scratched in by the infested individual. Therefore, a method which destroys only the lice and eggs without causing the destruction of the virus in the excreta is not sufficient. Delousing, then, should be defined as that process which destroyes lice and their eggs and the virus concerned in the transmission of disease.

2. Various methods have been recommended for delousing, such as hydrocyanic acid gas, chloropicrin, and various insecticides and heat appliances. It is to be noted that the virus of relapsing fever is a spirochete, while that of typhus fever is a bacillus. As these gases and insecticides are not bactericidal, they cannot be regarded as perfect delousing agents. In all instances in which heat is used, a high enough temperature must be employed to destroy the virus as well as lice and eggs. Steam has been found to be the best delousing agent.

3. All persons coming from a vermin-infested area should be regarded as if they were vermin infested. Examination for vermin in large bodies of men, even in the hands of experts, is of little value. A great deal of time is consumed in the examination, and the final result is of little use.

4. Clothes lice may lay their eggs on the hair of the head and of the axillary and pubic regions. This must be taken into consideration when treating this condition.

Clothes lice should be treated by sterilizing all clothing by exposure to steam under pressure for thirty minutes followed by ten minutes in a vacuum. The clothes then come out dry. If shrinkage of woolen materials result, the disinfector is not properly operated. Shrinkage of woolen materials is due to combined moisture and high temperature; therefore, if the moisture is kept at a minimum and the temperature at a point sufficient to sterilize, this will not occur. In no instance should leather material (such as shoes, puttees and hat) or rubber, celluloid material or money be sterilized. The occurrence of vermin in these materials is rare.

ARMY PLAN

The Army proposes to handle the problem in this manner: All troops will be detained at foreign ports for a period of two weeks, during which time persons with infectious and epidemic diseases will be isolated and universal delousing will be practiced before embarking. Delousing will be practiced on transports when necessary. All soldiers on transports will be instructed to devote fifteen minutes each day to the search for vermin in their clothing. Universal delousing will be again practiced at debarkation camps in the United States. This will serve as a check on the first delousing.

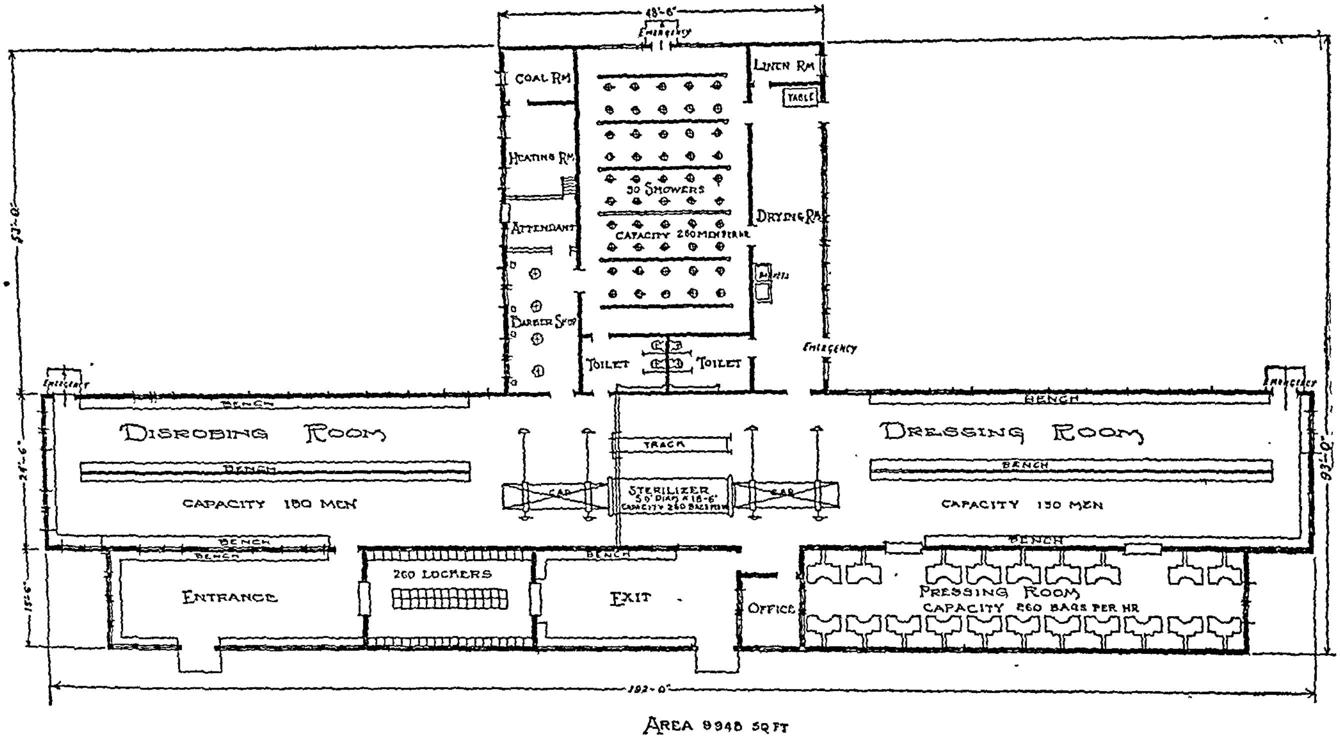

Fig. 2.—Plan of delousing plant.

AN EFFICIENT DELOUSING PLANT

All sick and wounded will be deloused at the debarkation hospital. An efficient method would be to have the delousing room in association with the receiving ward. The following plan is suggested for this purpose. With this method vermin infestation would be prevented from being carried to the wards.

In order that the greatest number of men may be handled in the shortest period of time, it is important to have a rapidly functioning delousing plant. According to the plan here proposed, 260 soldiers and all their equipment can be deloused every hour. According to this plan the man enters with his barrack bag containing all his clothing. The leather materials, rubber, celluloid materials and money are passed in at the locker room. The man receives two numbered tags corresponding to the number of the locker, and then proceeds to the disrobing room with his barrack bag. All his clothing is placed in the bag, which is tied and numbered with one of the tags, the man retaining the remaining tag. The bag is then placed in the carriage, which is pushed into the steam sterilizer. The sterilizer is 18½ feet long by 5 feet in diameter and is provided with two cars and transfer tracks, so that one car will be loading or unloading while the other is in the sterilizer.

The soldier then proceeds to the hair-cutting room. Before entering, he is inspected for vermin and nits. If vermin and nits are found in the hair of the head, axillary or pubic region, he is passed into the barber shop. If none are found, he passes into the shower room. In the barber shop the hair is cropped with an electric hair-cutting machine. The axillary and pubic hair can be shaved in this room. Following this he enters a shower room, where a bath with liquid soap and warm water is obtained. The soap used is a kerosene soap mixture. A drying room follows, a table being provided for the clean towels and a receptacle to receive the soiled ones.

Provision is made in this plan for a pressing room, as the clothing is wrinkled following steam sterilization. The pressing of garments, however, would somewhat retard the process. The leather material, etc., is reclaimed at the locker room. The floor of this building is made of concrete. Two toilets are provided, one for the dirty men and one for the clean men. All attendants wear the louse-proof suit, which is a one-piece garment covering the shoes and tied about the neck.

With an arrangement such as this, when universal delousing is practiced, there should be no danger of vermin infestation or louse-borne diseases gaining entrance into the United States.

INTESTINAL PARASITES DURING A YEAR AT THE WALTER REED GENERAL HOSPITAL *

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During the year October, 1917, to October, 1918, there were examined at the laboratory of the Walter Reed General Hospital 477 samples of feces for intestinal parasites. In nearly every instance the samples were submitted because the patient had shown some evident or obscure reason for suspecting the presence of intestinal animal parasites, although there are included a number of samples that were sent for examination for typhoid or dysentery bacilli. The 477 stools came from 163 individuals, seventy-two of whom, or 44 per cent., were found to harbor one or more kinds of parasites, while in ninety-one persons, or 56 per cent., no parasites were found.

With the exception of *Endameba histolytica*, none of these cases of intestinal parasites can be said to possess much medical interest. Their presence is one of greater zoological than medical interest. Next to the ameba infections the hookworm cases are of most interest. Most of these were very light infections, but they are an indication of how widely scattered this parasite has probably become during the formation of the Army.

The method practiced in looking for protozoan parasites is to place a drop of the feces, either plain or mixed with a little water or salt solution, on a slide and press it out with a cover glass. No attempt is made to concentrate cysts. In searching for ova or embryos a considerable portion of the stool is emulsified with water, usually by pouring water into the container in which it is sent to the laboratory. The liquid material is then poured through two thicknesses of gauze into a urine sedimentation glass. After a distinct sediment has formed in the point of the glass, the brown supernatant water is poured off. More water is then roughly added so that the sediment is thoroughly stirred up, and it is allowed to settle again. This washing is repeated several times until the supernatant water is essentially clear. After the final sedimentation, about 0.25 c.c. of the upper layers of the sediment is spread on a slide without a cover glass and search made with the low powers of the microscope, a mechanical stage being used. The spread occupies most of the slide, and by the use of a wax-penciled border is kept from running over its edges. The chief advantage in the washing and sedimentation is that innumerable small particles, mainly bacteria, are got rid of, and a very clear sediment is left to examine. The washing may appear time consuming, but it takes only a moment to pour off and fill up again, and while the settling is taking place other things can be attended to. Examination of one spread slide is considered sufficient to establish the presence of ova. In a few cases, however, an especially enthusiastic searcher has found an ovum or an embryo in examining a second spread which had not been found on the first.

Hookworm, *Necator americanus,* was found most frequently, occurring in 34.2 per cent. of the parasites and 17.2 per cent. of the persons examined. The number of worms was always small. The largest number recovered from complete stools after hookworm treatment was seventy-one and the smallest two. Its presence often caused a slight eosinophilia. The first case found was in a patient whose blood, on being examined for malaria parasites, showed so many eosinophils that a stool for examination was requested. The farthest north from which the hookworm cases came was Virginia and Tennessee. Hookworm ova were found alone twenty-three times; with *Strongyloides* embryos twice; with *Endameba coli* twice; with *Ascaris* and *Trichuris* twice, and with *E. coli, Trichuris* and *Trichomonas* once.

Strongyloides, occurring in 4.3 per cent of the persons examined and 8.5 per cent of the parasites, was found alone five times and twice with *Necator*. With two exceptions they were not present in large numbers. In one of these they were the only parasite present, and in the other they were with the second heaviest hookworm infestation, and both were in patients in the tuberculosis ward. In the case occurring with hookworm, successful treatment for the latter failed to have any effect in reducing the number of *Strongyloides* embryos.

The five *Taenia saginata* cases were not diagnosed in the first instance by the laboratory, but having been found elsewhere, were sent into the hospital for treatment.

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* From the Laboratory Service of the Walter Reed General Hospital.

The three *Trichuris* cases were light infections. In one of the cases in which it was the only parasite present, the host came from Brooklyn, while in the other two cases the patients were from the Southern states.

Of the four *Ascaris* infestations, two were present alone in small numbers and two occurred with both *Necator* and *Endameba coli;* once with *E. histolytica,* thirty-four worms were recovered. It was one of the few cases in which intestinal helminthiasis appeared to be the only pathologic condition in a patient.

The two cases of infestation with dwarf tapeworm, *Hymenolepis* occurred without other parasites being present.

The single case of *Oxyuris* occurred in a nurse.

Endameba coli was present in seventeen of the persons examined, and next to hookworm was the most frequent parasite, occurring in 10.4 per cent. of the persons and 20.6 per cent. parasites. It occurred alone twelve times, with *E. histolytica* once, with *Necator* twice; with *Trichuris, Necator,* and *Trichomonas* once, and with *Trichomonas* once.

Endameba histolytica was found in ten individuals, 6.1 per cent, and 12.2 per cent among the parasites. The patients having it were either from the Southern states or had had tropical service. It occurred alone eight times; with *E. coli* once, and with *Trichomonas* once. None of the cases showed any manifestation of the infection outside of the intestine. One case was of particular interest. The patient was an especially well built person and was receiving a third course of emetin hypodermically, as two previous courses had failed to destroy the amebas. Although apparently perfectly well during the previous day and able to be up and about, he went into a state of collapse one night. Stimulants failed to revive him, and he died the next morning. Necropsy revealed no abnormalities other than venous congestion and a rather extreme dilatation of the right side of the heart. No evidence of the amebic infection was present. There is little doubt that death was due to the specific action of the emetin. In its symptoms and pathology this case is quite similar to the two fatalities described by Johnson and Murphy.[1]

FREQUENCY WITH WHICH PARASITES WERE FOUND

Name	Number of Cases	Percentage of Frequency of Parasites	Percentage of Persons
Necator americanus	28	34.2	17.2
Endameba coli	17	20.6	10.4
Endameba histolytica	10	12.2	6.1
Strongyloides stercoralis	7	8.5	4.3
Taenia saginata	5	6.1	3.1
Ascaris lumbricoides	4	4.9	2.5
Trichuris trichiura	3	3.7	1.8
Trichomonas intestinalis	3	3.7	1.8
Giardia intestinalis	2	2.4	1.2
Hymenolepis nana	2	2.4	1.2
Oxyuris vermicularis	1	1.2	0.6

Only two cases of *Giardia* infections were noticed. In one, numerous cysts were present in the stool. The organisms were then obtained in active form by securing intestinal contents through a duodenal tube. The other case was a mild infection, and the few cysts in the stool escaped observation until after the active parasites had been seen in rather large numbers in bile from the duodenum, the bile having been obtained for examination for typhoid bacilli in a case of a suspected typhoid carrier. Undoubtedly many other cases of *Giardia* infection escaped observation.

Trichomonas was observed three times, always in conjunction with other parasites, once with *Trichuris, Necator* and *Endameba coli;* once with *E. histolytica* and once with *E. coli.*

In the table are shown the number of individuals in which the various parasites were found, and the percentage of frequency of each parasite and its percentage of occurrence among the persons whose stools were examined.

THE DIAGNOSIS OF MITRAL REGURGITATION (VALVULITIS)

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Mitral regurgitation, which has been assumed to be the easiest of all valvular diseases to recognize, is, in my experience, the most difficult. It is essential that one define mitral regurgitation on a pathologic basis. Mitral valvular disease in this sense is assumed to consist pathologically of a true valvulitis.

The presence of a systolic murmur at the apex, transmitted to the axilla, has quite generally been regarded as evidence of mitral valvular disease. It is my opinion that entirely too much emphasis has been laid on the presence of a systolic murmur. The large number of adventitious sounds heard in examining recruits has been a matter of surprise. Deviations of the cardiac mechanism from the presumed normal are almost the rule. Systolic, apical or basic murmurs are heard in at least 50 per cent. of all men examined, especially immediately after exercise. The intensity of these apical murmurs varies greatly; usually they are soft, with only short, lateral areas of transmission. At other times, however, they are loud and rough, transmitted to the axilla and angle of the scapula, only to disappear with the decrease in the heart rate. The basic systolic murmurs, because of one's previous training and habit of thought, are usually disregarded by examiners. The apical murmurs, however, are regarded with suspicion and are not infrequently interpreted as of serious import.

In the examination of a large number of young soldiers between the ages of 21 and 31, approximately 3 per cent. are rejected for full military service because of cardiovascular conditions. It is interesting to compare the causes of rejections as submitted by various examiners. Mitral regurgitation may occupy the most prominent position or the least prominent, depending on the interpretation of the physical signs by the examiner. It is necessary that certain criteria be established in order to standardize the work. This is illustrated by the rejections of a board consisting of six medical officers, working in the same camp at two widely separate stations. At Station 1, 4,217 men were examined, and 144, or 3.4 per cent., were rejected. At Station 2, 3,777 men were examined, and 118, or 3.1 per cent., rejected. At Station 1, functional cardiovascular disorders composed 74.3 per cent. of the total rejections, while at Station 2 they composed only 49.6 per cent. This may be explained by the fact that at Station 1 we were more rigid in our criteria in diagnosing mitral regurgitation. This is evidenced by the fact that Board 1 diagnosed only seven cases of mitral regurgitation, while Board 2 diagnosed forty-six.

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[1] Johnson, H. H., and Murphy, J. A.: The Toxic Effect of Hydrochloride, Mil. Surgeon 40: 58-70, 1917.

In the examination of 10,000 limited service men at Syracuse Recruit Camp, careful records were kept of abnormalities. Six hundred and sixteen soldiers, or 6.16 per cent., were placed in limited service because of neurocirculatory asthenia or functional cardiovascular disorder. The diagnosis of mitral regurgitation was made in thirty-three instances, or 0.33 per cent. In 191 recruits, 1.9 per cent. systolic, apical murmurs were noted. Not all systolic, apical murmurs were recorded, but only those of such a degree of intensity as possibly might be interpreted by some as of significance. In thirty other soldiers a systolic murmur was heard at the apex, which, in conjunction with other symptoms and physical signs, caused us to limit their service. This group is an intermediate one and is most difficult of interpretation. Systolic murmurs were recorded in 870 cases, or 8.7 per cent., and the diagnosis of mitral regurgitation was made definitely in only thirty-three cases, or 0.33 per cent. of the total examined. However, in contrast with these figures, some examiners report that from 15 to 60 per cent. of their rejections were for mitral valvular disease.

We have used these criteria for the diagnosis of mitral valvular disease: (1) cardiac hypertrophy; (2) a systolic, apical murmur, and (3) a definite history of one or more attacks of acute articular rheumatism (not growing pains or tonsillitis).

In my opinion, it is necessary, in order to make the diagnosis of mitral regurgitation, to have the first and second or the third and second of these criteria. The presence of definite hypertrophy always means heart disease. In the absence of cardiac hypertrophy, and even in the absence of symptoms, a systolic, apical murmur and a definite history of one or more attacks of acute articular rheumatism should be considered significant. Using these criteria, we were able to label only thirty-three, or 3.8 per cent., of the 870 cases with systolic murmurs as mitral regurgitation (valvulitis).

In the criteria used for the diagnosis of mitral regurgitation, such physical signs as an accentuated or split pulmonic second sound were purposely omitted. This physical sign per se is, in my experience, of practically no value. It is a fairly constant phenomenon in the overacting heart and is normally found in young adults. Abdominal pulsation of the type corresponding to the contractions of the right ventricle is also of no differential value. The character of the pulse, or the presence of irregularities, such as ventricular premature beats, is of even less significance. The intensity or the propagation of the murmur is at best a sign of doubtful value. It must be admitted that, given a soldier with no hypertrophy, no definite history of acute articular rheumatism and no symptoms, but with a loud, musical, systolic murmur at the apex transmitted to the axilla and angle of the scapula, because of one's previous training and habit of thought, it is extremely difficult to disregard this murmur absolutely. The plea is made, however, not to lay too much emphasis on this murmur, especially if there is tachycardia. It is my opinion that this murmur signifies more in a slow acting heart. I have observed murmurs of this kind disappear within a few hours. Only by following these cases for a period of years can sufficient data be accumulated to formulate a definite prognosis.

The differential diagnosis of mitral valvulitis (regurgitation) must be made from the following conditions: (1) functional cardiovascular disorder, disordered action of the heart, "irritable heart of soldiers," neurocirculatory asthenia; (2) accidental systolic, apical murmurs.

The differential diagnosis from functional cardiovascular disorders is not especially difficult. The absence of cardiac hypertrophy plus the accompanying physical signs of functional cardiovascular disorder, independent of the cardiac manifestations, make the differential diagnosis fairly simple. The intensity and propagation of these murmurs may not differ in any way from the type of murmur seen in true valvulitis. However, the other symptoms and signs of neurocirculatory asthenia are absent in the cases of true, organic, mitral valvulitis. Occasionally, a case of mitral valvulitis may also have a neurocirculatory asthenia complex. In this instance, the diagnosis of the combination is extremely difficult. After excluding the neurocirculatory asthenia group, we are left with a group of cases with no cardiac hypertrophy, but with the systolic, apical murmurs. This is the group that offers the greatest difficulty in proper interpretation. It is the group that in civil life it has been the rule, rather than the exception, to consider as early valvular disease. Its frequency in young adults precludes, to my mind, the possibility that many of these cases can be really organic valvular defects, but the murmurs must be interpreted as of little significance and probably of dynamic origin. It must frankly be admitted that we have no adequate explanation as to the causation of these murmurs. However, it is not a matter of great surprise that accidental murmurs occur, but that they do not occur more frequently. The function of the examining physician, in the latter group of cases, is to determine the fitness of the recruit for Army life. This can be done only by a careful consideration of each individual case. The response to a measured amount of work is one of the most practical guides. The effect of the exercise on the patient must be carefully observed. A peculiar look of anxiety and unusual acceleration of respiration are all important signs in determining the exercise response. This group separates itself into two classes on the basis of exercise response: (1) without symptoms, and (2) with symptoms.

Those without symptoms are fit for full military service. This statement is confirmed by the after-histories of a group of these soldiers (Lewis). The class with symptoms is the most difficult one to label; they are probably early cases of organic valvular disease. This class corresponds to the thirty soldiers classified as mitral valvular defect or doubtful group. Electrocardiographic evidence of left ventricular predominance or orthodiagraphic evidence of the so-called mitral configuration is of service in diagnosing these cases.

The ruling of Lewis on apical, systolic murmurs is, to my mind, sound. The systolic murmur per se is disregarded. The soldier is disqualified because of cardiac hypertrophy, not because of a systolic murmur; or is disqualified because of a poor exercise response, not because of a systolic murmur; or his service is limited because of a definite attack of rheumatic fever, and not because of a systolic murmur.

It is to be hoped that the valuable lessons learned from the examination of a large number of young adults will be reflected in the attitude of the medical profession in handling this group of patients in civil life.

SLOW INTRAVENOUS INJECTION OF ANTISERUM TO PREVENT ACUTE ANAPHYLACTIC SHOCK [*]

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From the beginning, the great bane of serum therapy has been serum sickness, the occurrence and severity of which can never be predicted. Individuals who do not give a history of previous sensitization often give reactions varying from death to an uncomfortable urticaria in certain diseases in which repeated doses of serum are given; and on the occurrence of successive infections, each of which call for serum treatment, the serum sickness is much more likely to occur and with greater severity.

Since the recognition of the fact that serum disease is a phenomenon of protein sensitization, or anaphylaxis, much research work has been done to find a means to prevent it, and as a result many suggestions have appeared in the literature, most of which have proved worthless or impracticable. On the basis of the fact that most anaphylactic phenomena are due to the contractions of plain muscle fibers, the administration of drugs acting on the sympathetic nervous system has been advised. Netter[1] advised the use of calcium chlorid, but Rosenau and Anderson,[2] Schippers,[3] and Wentzel[4] showed that it had no effect. Barium chlorid, studied by Biedl and Kraus,[5] and atropin, studied by Auer and Lewis,[6] on sensitized dogs, are uncertain in their action, and at any rate are not advisable for human use. Rosenau and Anderson show that a narcotic may mask but does not prevent the occurrence of severe or fatal reactions. In studies made for the analysis of the anaphylactic reaction, it was found by Sleeswijk[7] and Friedberger and Hartoch[8] that there was a diminution of complement in the blood of an animal immediately after anaphylactic shock. In order to prove the significance of this diminution of complement, to show whether it is a secondary phenomenon or whether complement takes an active part in the production of conditions that cause death, Friedberger and Hartoch made use of the fact observed by Nolf,[9] Hektoen and Ruediger[10] and others that hypertonic salt solution (from 1.5 to 2 per cent.) will prevent the combination of complement with its sensitized cells. By slowly injecting into sensitized guinea-pigs 0.3 c.c. of concentrated sodium chlorid solution just before the injection of antigen, they were able to diminish anaphylactic shock markedly, saving animals from injections that invariably killed the controls. There are, however, no reports of the use of this method in the prevention of anaphylactic symptoms in man.

Another method worked out for the most part by Besredka[11] depends on the production of the state of antianaphylaxis by giving minute single or repeated doses of antigen followed in three or four hours by the full injection. Besredka shows that the same results can be accomplished by the rectal injection of from 5 to 10 c.c. of serum, in which case there also occurs a slow, gradual absorption of antigen. While no satisfactory method for producing the state of antianaphylaxis in a sensitized person has yet been devised, owing probably to the important quantitative factors shown by the studies of Weil[12] to exist, either of these two methods of Besredka is the one usually employed in cases in which the administration of serum in the ordinary way is believed to be highly dangerous.

Friedberger and Mita[13] have suggested another method, which depends on the very slow administration rather than division of dose. They showed that many times the fatal dose of serum could be given intravenously to sensitized guinea-pigs if the serum was diluted and given slowly by a specially constructed apparatus, over a long period of time.

When it was shown that the danger and intensity of serum sickness was influenced by the size of the dose of the serum, it was an obviously logical procedure to attempt to concentrate the active elements in antiserums into as small a volume as possible. The methods of concentration developed by Gibson,[14] Banzaf[15] and others have succeeded in making it possible to produce antiserums, principally diphtheria antiserum, which have a very much higher concentration of antibodies. However, the antitoxic property of serum is closely associated with the globulins, which are at the same time closely associated with the production of anaphylaxis; and while the process of concentration does enable one to give large doses of antibodies in a small volume and thereby the occurrence and severity of anaphylaxis is lowered, serum sickness still occurs.

In the practice of serum treatment of pneumonia, which is being established more and more as a success, the occurrence of two facts causes the question of serum sickness to loom still greater as an inconvenience. In the first place, the concentration of antipneumonic serum has not been successfully accomplished as it has been for diphtheria antitoxin. And in the second place, the promulgators of the use of antipneumonic serum advise the use of large volumes of the serum (from 50 to 100 c.c.) injected directly into veins. Both of these factors are no doubt responsible for the many reports of serious anaphylaxis reaction, especially from the army camps, where many cases of pneumonia have been treated with antiserum.

A consideration of the possibilities for the prevention of these unfortunate reactions leads one to believe that the method of Friedberger and Mita, the slow protracted injections of the diluted serum, is the one best adapted to the conditions. This is especially so since we now have an apparatus in the form of the Woodyatt pump,[16] which is ideally suited for the purpose. This apparatus consists of a syringe operated by an electric motor which can be regulated to deliver accurately as small a volume as 0.1 c.c. of fluid a minute directly into the veins. By varying the rate of injection and the dilution, antiserum may be given as slowly as desired. As a matter of fact, this is one of the first uses that suggested itself for the apparatus; and communications from Woodyatt remark the necessity of the study of this procedure.

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[*] From the Otho S. A. Sprague Memorial Institute and the Department of Pathology, University of Chicago.

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2. Rosenau and Anderson: J. M. Res. **21**:16, 1909.
3. Schippers: Nederl. Tijdschr. v. Geneesk. **2**:1559, 1910.
4. Wentzel: Centralbl. f. inn. Med. **31**:697, 1910.
5. Biedl and Kraus: Wien. klin. Wchnschr. **22**:363, 1909.
6. Auer, J., and Lewis, P. A.: Acute Anaphylactic Death in Guinea-Pigs, J. A. M. A. **53**:458 (Aug. 7) 1909; J. Exper. Med. **12**:151, 1910.
7. Sleeswijk: Ztschr. f. Immunitätsforsch. **2**:133, 1909.
8. Friedberger and Hartoch: Ztschr. f. Immunitätsforsch. **3**:581, 1909.
9. Nolf: Ann. de l'Inst. Pasteur **14**:297, 1900.
10. Hektoen and Ruediger: J. Infect. Dis. **1**:379, 1904.
11. Besredka: Compt. rend. Soc. de biol. **65**:478, 1908; **70**:203, 1911.
12. Weil: J. M. Res. **29**:233, 1913; **30**:299, 1914.
13. Friedberger and Mita: Deutsch. med. Wchnschr. **38**:204, 1912.
14. Gibson: J. Biol. Chem. **1**:161, 1906.
15. Banzaf: Proc. Soc. Exper. Biol. & Med. **7**:148, 1910.
16. Woodyatt: J. Biol. Chem. **39**:355, 1917.

Most manufacturers resort to the addition of tricresol or phenol to serums, in order to preserve their products from bacterial contamination. For this purpose, from 0.3 to 0.5 per cent. of phenols are added. This means that the patient may receive with a single injection as much as 0.5 gm. of phenols directly into the blood stream, and with repeated injections, from 1.2 to 2 gm. in the twenty-four hours. Voegtlin[17] finds that the addition of phenols to serum not exceeding 0.5 per cent. does not impart toxic properties; but on the basis of his pharmacologic observations, he concluded that such preserved serums should be injected at very slow rates.

For the experiments, a series of dogs, rabbits and guinea-pigs were sensitized to horse serum; dogs, by being given 10 c.c. subcutaneously; rabbits, by being given 5 c.c. intravenously, and guinea-pigs, by being given 0.01 c.c. intraperitoneally. After the proper incubation period, these animals could be easily killed by a small dose of horse serum given intravenously.

ANIMAL EXPERIMENTS

Dogs.—The most characteristic phenomenon of anaphylaxis in dogs is a primary fall in blood pressure, a reaction that can be easily registered graphically on a kymograph. Sensitized dogs of about the same weight were anesthetized with ether and one-fourth grain of morphin, and kept under anesthesia through a tracheal cannula. A mercury manometer making tracings on a smoked drum was connected to the carotid artery. Injections were made into the saphenous vein. The injection of 5 c.c. of undiluted horse serum all at once into the vein caused a marked fall in blood pressure, a slowing of the heart, and slow, deep respirations. Death occurred in about fifteen minutes. Injections were made with the Woodyatt machine of 1:10, 1:40, and 1:100 dilutions of horse serum in 0.9 per cent. sodium chlorid solution. The 1:10 dilution at the rate of 0.35 c.c. a minute caused a fall in blood pressure when 0.9 c.c. had been injected. The blood pressure remained low during the five or six hours of injection, but did not kill the animal. The 1:40 and 1:100 dilutions injected at 0.35 c.c. a minute for five or six hours did not cause a fall in blood pressure during the injections. At the end of these injections when 5 c.c. of undiluted serum were given all at once intravenously, there was a fall in blood pressure showing that the animals were not completely desensitized, but enough so that death was prevented.

Rabbits.—Sensitized rabbits of equal weight were injected with 1:10 and 1:100 dilutions. The 1:10 dilution was injected at about the rate of 0.3 c.c. a minute for about six hours. The temperature at the beginning of the experiment was 40 C.; at the end it was 36 C. This rabbit died within one and one-half hours after the injection. The second rabbit was injected with a 1:100 dilution of horse serum. During the first two hours and forty minutes, 44.2 c.c. were injected (about 0.27 c.c. a minute), and in the next three hours, 163.5 c.c. were injected (about 0.94 c.c. a minute). The animal died while the injection was in progress. The third rabbit was injected with the 1:100 dilution. In eight hours and fifteen minutes, 181.35 c.c. were injected (0.3 c.c. a minute). There were no symptoms of anaphylaxis. The temperature showed no alteration. The animal was well and alive the next day, when 2 c.c. of undiluted horse serum were given all at once intravenously. There were no symptoms and no change in the temperature. When 1.5 c.c. of undiluted serum were given intravenously to a similarly sensitized rabbit that had received no preliminary injection with the machine, a very severe reaction was produced, but not death.

Guinea-Pigs.—Given intravenously, 0.01 c.c. of horse serum injected into two similarly sensitized guinea-pigs caused immediate death. With the machine a 1:1,000 dilution of horse serum injected at the rate of 0.3 c.c. a minute into a sensitized animal produced death during the third hour of the injection. Two sensitized guinea-pigs injected intravenously for six hours with a 1:10,000 dilution at the rate of 0.35 c.c. a minute (a total of 0.0126 c.c. of serum) showed no acute anaphylactic symptoms, but both animals died during the following day. In one of these animals the temperature rose from 102.8 F. at the beginning of the injection to 105.6 F. at the end of the fourth hour, and fell to 99.4 F. at the end of the injection.

The experiments with the guinea-pigs were not satisfactory because the prolonged intravenous injections into such small animals are very severe operations. The injections, rather than the action of the serum, undoubtedly caused the death of the last two animals.

CONCLUSIONS

Acute anaphylactic shock can be prevented in sensitized experimental animals by giving otherwise fatal doses of diluted antigen intravenously at very slow rates.

So far as these results can be applied to man, it is to be recommended that when immune serum must be given intravenously, it should be given slowly and in a diluted form, the Woodyatt pump serving as an excellent means of doing so. The exact quantitative relations must be worked out experimentally with patients. At present it can only be said that the injections should be made as slowly and the dilutions as high as is convenient or necessary under a given set of conditions.

BACTERIOLOGIC CONTROL IN THE TREATMENT OF STREPTOCOCCUS EMPYEMA

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In the preliminary report by the Empyema Commission,[1] the importance of the bacteriologic control of the degree of infection or sterility of an empyema cavity was duly emphasized. When the empyema patients were transferred from Camp Lee, Va., to U. S. Army General Hospital No. 12, the study was continued here, and additional observations made which may be of aid in the future therapy of this condition. What is true of streptococcus empyema should also hold true of empyema due to other organisms.

The technic of the culture method was that employed by the commission: Sterile Petri dishes are brought to the ward and in each is placed from 0.1 to 0.2 c.c. of sterile decinormal sodium thiosulphate solution (the thiosulphate is kept in a test tube with a sterile pipet passed through the middle of the cotton plug, and is sterilized by boiling or by steam pressure). When the dressings and Dakin tubes are removed by the surgeon, a long platinum wire with a standard sized loop at its end is passed into the empyema cavity *without touching the walls of the sinus if possible*, and a loopful of secretion is removed. It is thoroughly washed off in the thiosulphate solution in the Petri dish. (Thiosulphate is employed so as to stop the action of any Dakin's solution that might be contained in the loop of secretion.) The plates can be kept until all the cultures of the ward are completed and then taken to the laboratory where the blood agar is poured; or, as was done at the General Hospital No. 12, the blood agar is poured directly in the ward, each plate being completed while the surgeon is finishing the respective dressing. For each plate, 10 c.c. of melted neutral agar in tubes were poured under sterile precautions into a test tube containing 1 c.c. of sterile defibrinated human blood, and the mixture emptied into the Petri dish containing the loopful of secretion. The contents are carefully and thoroughly mixed so as to make an even distribution of the growth and then incubated for twenty-four hours, after which the number of colonies on each plate is estimated.

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[17] Voegtlin: Bull. 112, Hyg. Lab., U. S. P. H. S.

[1] Cases of Empyema at Camp Lee, Va., J. A. M. A. 71:366, 443, 1918.

In reporting the count to the ward surgeon, the general scheme of the Empyema Commission, with slight modification, was followed:

(*a*) Name.
(*b*) Ward.
(*c*) Plate number.
(*d*) Color (whether normal color of blood or not).
(*e*) Hemolysis. (No hemolysis or percentage of hemolysis of entire plate. For example, plates having many thousands of colonies, counted microscopically, appear almost entirely hemolyzed to the naked eye. Thus, this plate would be designated 90 per cent. hemolysis.)
(*f*) Number of colonies counted. (If the entire plate is counted, the total figure is put down; if the total figure is estimated by counting only a very small fraction of the plate, especially microscopically, the calculation to determine this total amount is placed in this column; thus, 61/20 × 4,570).
(*g*) Total number of colonies (derived from "f").
(*h*) Number of hemolytic streptococci.
(*i*) Number of hemolytic staphylococci.
(*j*) Number of nonhemolytic organisms.

At General Hospital No. 12, we made this division of hemolytic staphylococci because special attention was given to the relationship of hemolytic and nonhemolytic staphylococci to the hemolytic streptococci. No definite conclusions have been reached. While no differences in cultural characteristics of the numerous strains of hemolytic streptococci isolated have been found, the hemolytic zone surrounding the streptococcus colony varied in degree with different strains, giving the impression that the streptococci varied in their hemolytic activity.

It is fully realized that inaccuracies due to this technic are more than probable, but it has been found sufficiently accurate as a comparative guide, if always done the same way on the same patient. The difference of 700 or 1,000 bacteria in a total count is not of paramount importance. Some authorities advise the use of capillary glass pipets instead of the platinum loop so that the identical amount of secretion may be obtained each time. In many instances, however, the sinus leading into the empyema cavity is very tortuous so that the glass pipet is likely to break or secretion from the sinus instead of from the cavity may be obtained. The last contingency is to be strongly warned against, as will be shown below.

The very small percentage of contaminating organisms found is surprising. The cultures usually showed pure growths of hemolytic streptococci. Occasionally, however, when the streptococci had disappeared from the cavity, a new invader appeared, most frequently the staphylococcus. An attempt was made to find a relationship between the growth of the hemolytic streptococcus and the presence of other organisms. In many instances it seemed as if the presence of the hemolytic streptococci in large numbers excluded other organisms; and when the hemolytic streptococci disappeared, the other organisms appeared. In going over the reports of hundreds of cultures, however, this theory was not substantiated. Furthermore, test tube experiments showed no such interference in growth.

Cultures from the cavity were made every few days, in some patients every day. It was interesting to note, as has been described by the commission, that in cases in which the Carrel-Dakin treatment was having the proper effect and the empyema cavity was being sterilized, the number of hemolytic streptococci gradually diminished so that a plate which showed 90 per cent. hemolysis and contained over a hundred thousand bacteria (as is often the case in aspirated pus) would, after thoracotomy and proper Carrel-Dakin treatment for several weeks, come down to complete sterility. Naturally, it is absolutely essential to omit the flushing of the empyema cavity with Dakin's solution for at least six hours previous to taking cultures. On several occasions when the ward surgeons had been changed, a series of sterile plates was obtained because this apparently superfluous advice was overlooked.

If the gradual downward curve of the number of bacteria does not take place or if the curve has been coming down and a sudden rise occurs, some complication in the healing of the empyema cavity exists. The cause is to be found in one of several conditions:

(*a*) A secondary small pouch in direct communication with the large empyema cavity exists, and the communication is such that the Carrel tubes do not enter there; thus, there is growth of bacteria in this small pouch, which constantly feeds into the large empyema cavity from which the cultures are made. In such instances, the bacterial count takes an intermittent curve because on some days the Dakin tubes are so placed that the small cavity is disinfected and a consequent drop in the number of bacteria occurs, while on other days granulations are such that the tubes do not slip into the smaller cavity, with a consequent high number of bacteria in the next culture.

(*b*) Occasionally the necrotic tip of a rib projects into the empyema cavity, and the continuous high count of bacteria from this source persists, and clears up only after the necrotic portion either separates off or is taken care of by the surgeon.

(*c*) In some instances a persistent high count may be caused by a small gauze sponge or piece of rubber tube left in the empyema wound at the time of operation. In such cases, the cultures show types of bacteria other than the hemolytic streptococcus, either alone or in conjunction with the latter.

(*d*) At one time there was a sudden increase in the number of bacteria in almost all patients. Some who were formerly absolutely sterile began to show hemolytic streptococci or other organisms. All possible errors in the surgical technic were excluded. It was found that a fresh supply of bleaching powder was being used which was not very active and which required an entirely different proportion of sodium carbonate and bicarbonate than did the old bleaching powder. The correction of the formula diminished the number of positive cultures. It was the surgeon, Major Moschowitz, who suspected that the error lay in the Dakin's solution, as the wounds showed too much secretion, and the granulations did not look healthy.

When the plates begin to show sterile conditions, cultures are made more frequently than twice a week; and when persistent negative results are obtained, the surgeon allows the empyema cavity to close. As to the number of sterile cultures necessary before this is permitted or the technic employed in closing the wound, each surgeon has his own method. It is agreed, however, by all, that under no circumstances is the wound to be allowed to close when the cavity is not entirely and persistently sterile, thus making the bacteriologic examination a most important factor in the proper therapy of the case.

Several additional facts have been brought out in this study:

1. The blood used for the cultures may be collected with sodium citrate solution (0.3 per cent.) to prevent coagulation, instead of defibrinating the blood. By the use of sodium citrate, very little blood is lost. At U. S. Army General Hospital No. 12, where only human blood was available and large quantities were required, it was important to waste as little as possible. In no way has the sodium citrate been found to interfere with the growth of the hemolytic streptococcus.

2. Cultures should be taken directly from the empyema cavity and not from the Dakin tubes. When these are removed by the surgeon, the ends usually contain a good deal of secretion, and one may be tempted to take cultures from here rather than to introduce the platinum loop into the empyema cavity. Comparative cultures made from the empyema cavity and from the tube always showed a much greater number in the empyema cavity, and in some instances cultures from the tube were sterile while the cultures from the empyema cavity still showed numerous hemolytic streptococci. Thus, the error of allowing the wound to close up too early is possible. This difference in number is readily explained by the fact that the ends of the Carrel tubes usually contain some Dakin's solution from the time it was last introduced into the empyema cavity, and thus disinfection continues there for a much longer period than in the empyema cavity.

3. When the empyema cavity begins to show sterile conditions, separate cultures should also be made from the sinus leading into the empyema cavity. The sinus should repeatedly be proved sterile before the cavity be allowed to heal. Numerous comparative cultures from the empyema cavity and from the sinus showed that hemolytic streptococci persisted in the sinus tract much longer than in the empyema cavity, so that if the empyema cavity is allowed to heal with hemolytic streptococci still in the sinus, reinfection of the empyema cavity is highly probable. The sirus always contains many more bacteria of all kinds than the cavity. The reason for this is as follows: The sinus is usually filled by the Carrel tubes and a short rubber drainage tube; the Dakin fluid runs into the cavity through the Carrel tubes and flows out through the short drainage tube, so that very little disinfectant comes in contact with the sinus. Disinfection of the sinus occurs only once a day, at the time of the dressing, when the whole wound is flushed with the Dakin solution. Thus it is evident that bacteria will persist in the sinus for a much longer period, in much greater numbers and in greater variety than in the empyema cavity. In one patient, repeated cultures from the empyema cavity were sterile, and the sinus showed hemolytic streptococci; but soon the empyema cavity again began to show these organisms, a condition probably due to a reinfection. On the other hand, there are cases in which hemolytic streptococci remain confined to the empyema cavity and never invade the sinus.

CONCLUSIONS

1. Bacteriologic control is of paramount importance in the proper treatment of empyema when the Carrel-Dakin method of disinfection is employed.
2. Cultures should be made from secretion obtained directly from the empyema cavity and not from the Carrel tubes.
3. Cultures, both from the empyema cavity, and the sinus leading into the empyema cavity, should repeatedly be proved sterile before the empyema cavity be allowed to close.
4. A persistently high bacterial count or a sudden increase in the number of bacteria is reasonable basis for assuming some complication in the healing of the empyema cavity.
5. Citrated blood may be used in the blood agar medium.

IRRITABLE BLADDER IN WOMEN*

CHARLES A. L. REED, M.D.
CINCINNATI

Frequent desire to urinate, slight or severe pain with or without straining when urinating, sometimes made worse by emptying the bladder and generally associated with persistent discomfort in the bladder, sufficient frequently to interfere with sleep, are the symptoms of the still other symptom that is here meant by the term "irritable bladder." The cases are generally of long standing and come with a history of prolonged and various treatment, including kidney remedies, washings of the bladder, correction of the uterus, operations on the perineum or rectum or both, and, finally if not all the time, opiates, sometimes resulting in drug habituation. As a rule these patients have lost flesh and have become highly nervous, which results in their frequent classification as "hysterics." They are as a rule sore trials to their medical attendants, the last of whom in desperation has sought relief at the hands of a consultant.

These cases represent real responsibility and call for the most serious and painstaking investigation on the part of those who assume their care. It is this fact that has caused me here briefly to review the real significance of the symptom, which, although a commonplace in our consultation rooms, is one that taxes diagnostic ability to determine not only the various pathologic conditions on which it may depend but also the actual condition on which it does depend in the given case.

GENERAL DIAGNOSIS OF IRRITABLE BLADDER

In looking for the pathologic cause of the symptom, we must remember that the underlying condition is one of abnormal sensibility of the lining membrane of the bladder itself. When we go back of this fact we may do well to recall that it may be caused by conditions either outside of the bladder or inside of it. Those that are outside of the bladder generally produce their effect by pressure and, for the most part, are pregnancy, displacements of the uterus, displacement of the intestine, or tumors of either the uterus or the ovaries. Displacement with sacculation of the bladder itself, often associated with a torn perineum, is to be taken into account. Infection of the fallopian tubes with resulting pressure or adhesions involving the tubes, ovaries and bladder in one mass is a frequent causative condition. Adhesions between the bladder and intestine, induced by the formation of plastic exudate on the peritoneum of the bowel as the result of a static mesenteric circulation or as a consequence of previous operation, have been repeatedly observed in my own work. Inflammation of a chronic character involving the urethral mucosa, especially the nabothian follicles, or ulcerations about the meatus or within the urethra, and urethral neoplasms and urethrocele, are conditions that cause frequent and painful urination and are sometimes taken for irritable bladder in cases in which the bladder itself is not really involved.

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* Read before the Southern Surgical Association, Baltimore, Dec. 17, 1918.

Among the conditions that arise within the bladder and that have a causative bearing on the symptom under consideration may be enumerated acute infection, generally gonorrheal, but often of the mixed type, the latter depending, I am sorry to say, all too frequently on careless use of the catheter. Tuberculous infection, sometimes primary but generally secondary to that of the kidney, is to be taken into consideration. Neoplasms, both benign and malignant, and calculi may be responsible for the symptom. Four of my patients with prolonged previous histories were readily relieved after discovering that the trouble was caused by diverticula. Two others had sacculated stones. In a few cases, the frequent urination was due to the fact that the bladder had become too small owing to contraction following severe acute cystitis that had been treated by caustic solutions. In a certain proportion of cases, circumscribed and very distinct ulceration, the so-called Fenwick ulcer, near the outlet was found to be the essential pathologic condition.

I have mentioned ulceration last in this brief and incomplete list of intravesical conditions because I wish to devote the most of my paper to another and quite distinct form of ulcer that I am sure deserves more consideration than it has yet received at the hands of the profession. I refer to the condition that has been described by Dr. G. L. Hunner[1] with such originality and distinctness that it has been called the "Hunner ulcer," which I would here designate by the same name if I were not opposed to calling any condition, anatomic or pathologic, by the name of any man. Dr. Hunner himself has called the ulcer "elusive" because of the frequency with which it eludes actual observation in the course of cystoscopic examination. I think it better, however, to use a term that describes some physical and consequently recognizable feature of the condition. I shall, therefore, call it the "punctate" ulcer of the bladder, as being more accurately descriptive of its size and appearance.

IMPORTANCE OF DIFFERENTIAL DIAGNOSIS

Before doing so I wish to speak of the importance of a subject which it is necessary to call earnestly to the attention of the early attendants on these patients, and that is the essential necessity of complete early examination of all bladder cases. It is not sufficient that a patient with bladder symptoms should merely recount her complaints and receive a prescription. Chronic irritable bladder, it should be taught, always depends on some definite local pathologic condition and, as I now believe, in the majority of instances, on the generally overlooked punctate ulcer. While this condition can generally be inferred from the history of the case, its importance, in view of the pain and impairment of health realized, and in view of the treatment required and benefits to be secured, demands that it never be left to a presumptive diagnosis.

CASES OF PUNCTATE ULCER OF THE BLADDER

This condition having been brought forcibly to my attention by Dr. Hunner's contribution to the American Gynecological Society in May, 1918, I recalled five cases of irritable bladder, all of them of long standing and distressing character, in which I had failed to bring more than merely temporary relief by so-called conservative methods. I accordingly sent for these patients to come in again for further investigation and more radical treatment. One, I found, had died from endocarditis following a prolonged and severe multiple arthritis. Four eagerly responded to the overture. One of these four is shortly to submit to operation. The other three patients gladly submitted to operation, and their histories are here briefly submitted as a basis for my further consideration of the punctate ulcer of the bladder, its pathology and diagnosis, and its treatment by excision of the ulcer-bearing area.

REPORT OF CASES

CASE 1.—Mrs. L., aged 34, mother of two children, referred to me by Dr. William H. Tarvin of Covington, Ky., in June, 1912, gave a history of nocturnal enuresis in childhood, for the relief of which at the age of 15 she had submitted to an operation for phimosis. The experience, she said, forced her to control the enuresis, only, however, by getting up from three to five times during the night. She was told that marriage would help; but, although she had since passed through three pregnancies, the painfulness of the bladder had continued with increasing severity. She had exhausted all the kidney medicines on the quack list and had gone to various physicians, regular and irregular, at home and abroad. When she first came to me she complained of pain in the rectum and perineum as being more troublesome than that in the bladder itself. She had to urinate on an average of once every hour, getting up four or five times at night. As a result she had lost flesh, was highly nervous, and wore a haggard look. Examination revealed the rectum free from lesion; the perineum, which had been torn and repaired, was normal, and there was no cystocele. Intense pain in the bladder was elicited by bimanual examination and even on external pressure above the pubes. The urine was clear, acid, free from albumin and sugar, and with only a slight cloud of mucus. Microscopic examination was not made; and if it had been, the real significance of its possible findings would not then have been appreciated. Careful cystoscopic examination revealed a few slightly granular bodies on the rather pale mucosa of the anterior wall. These bled on the slightest touch with a cotton applicator. I looked on the case as one of primary tuberculosis, which I construed as having occurred late in the history of an old cystitis. I resolved on what then seemed to be really radical measures. I treated the condition with thorough gauze curettage over the whole surface and constant drainage, with washings of silver nitrate solution and lavage with sodium bicarbonate in the intervals. The result seemed almost magical, and the patient for the first time in years was free from pain and could sleep all night. This lasted for nearly three months, when all the old symptoms rapidly redeveloped. Two months later she came back and asked to have the treatment repeated. The original appearances were again found and again treated as recounted, this time, however, with less satisfactory results. From that time on she was in a condition of chronic distress, which exceeded only that of her physician who, with his consultant, had to listen to her complaints while having no means to relieve her. June 10, 1918, she returned at my solicitation. I could now find not only some of the old granular bodies or cystic follicles but also a number of punctate ulcers on the anterior wall of the bladder, which area under air pressure was at first pale and then red and then could be observed to crack slightly and bleed. The urine from each of several voidings was found to look clear, but after being centrifuged was found to contain occult blood. These findings with the previous history gave me a positive diagnosis of punctate ulcer which Hunner had conclusively demonstrated to be incurable without excision of the ulcer-bearing area. The operation was accordingly done, June 16, 1918, by the extraperitoneal method essentially after the manner described by Hunner. The convalescence was uninterrupted and the patient went home at the end of three weeks without a symptom of her former trouble. There has not been the slightest return in the six months that have since elapsed.

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[1] Hunner, G. L.: A Rare Type of Bladder Ulcer in Women, with Report of Eight Cases, Tr. South. Surg. & Gynec. Assn. **27**: 247, 1914; Boston M. & Surg. J. **172**: 660, 1915; A Rare Type of Bladder Ulcer, J. A. M. A. **70**: 203 (Jan. 26) 1918; Elusive Ulcer of the Bladder, Am. J. Obst. **78**: 374 (Sept.) 1918; Tr. Am. Gynec. Soc., 1918.

Case 2.—Miss G., aged 43, teacher, referred by Dr. F. L. Mitchell of Liberty, Ind., in August, 1915, had suffered with "irritable bladder" for nine years, during which time, like all others of her class, she tried all sorts of treatment. It seemed as if nothing had been omitted from legitimate medicine to the veriest quackery, and I regret to record that the veriest quackery had been quite as successful as the most legitimate medicine. My own efforts to relieve her, except very temporarily, were another addition to the chapter of failures. The relief that I did give for a time was realized by gauze curettage, cauterization with 10 per cent. silver nitrate solution, subsequent alkaline irrigations and constant urethral drainage. Only a few weeks of comfort elapsed before the symptoms returned, and they continued with such increasing severity that the only relief was realized from opiates, the doses of which had grown to 2 gm. of morphin at least three and sometimes four times a day. When I sent for her to come back I found a positive diagnosis of punctate ulcer according to the methods and indications given in this article. Excision of the ulcer-bearing area was done, June 23, 1918. In this instance, however, warned by the hemorrhage in my former case, a complication from which Hunner had lost one of his patients, I did a direct transperitoneal operation by the method which I shall describe. The patient made an uninterrupted recovery and has since been entirely well.

Case 3.—Mrs. T., aged 57, widow, the mother of eight children, was referred to me, Dec. 19, 1916, by Dr. John G. Reed of Elmwood Place, Ohio, who had just been called to the case. The bladder symptoms for which she came had been persistent for fifteen years. She had also been crippled with rheumatism for a number of years and walked with a cane. This circumstance attracted attention to her teeth. She had marked pyorrhea of long standing, with several apical involvements. This circumstance is mentioned only because of the possible etiologic bearings on the bladder condition. The cystoscopic findings were those of what I by that time had come to call chronic granular cystitis. She too, was treated, as in Cases 1 and 2, by gauze curettage, styptics, alkaline irrigation and lavage. This was followed by very marked relief, which lasted for about two months. She then became worse than before and was inclined to blame me for the result. Like the second patient, she could get sleep only by the use of opiates. The reflex pain into the rectum and perineum was especially distressing and was becoming increasingly and intolerably worse. Her general health was breaking rapidly when I requested her return. The examination now revealed all the characteristic conditions of punctate ulcer over a large area of both the anterior wall and the vortex. Excision of the ulcer-bearing area was done, July 1, 1918. The transperitoneal method was employed. The extent of the resection was so much greater than in the preceding cases that I feared the remnant of the bladder could hardly meet its functional requirements. The surgical recovery was without incident. All tenderness of the bladder had subsided by the end of the fourth week. She, however, had yet to get up once or twice during the night in consequence of the diminished capacity of the bladder. This lasted in a diminishing way for about two months more. She now retains 8 ounces comfortably and 10 ounces without much effort.

SYMPTOMS AND DIAGNOSIS OF PUNCTATE ULCER

The diagnosis of punctate ulcer is based on a consideration of the previous history of the case, the present symptoms, the urinalysis findings and the cystoscopic appearances. Other possible causative conditions of irritable bladder, already considered, should first be taken into account and excluded. The previous history of punctate ulcer is that of long duration, persistence in spite of treatment, and gradually increasing severity. The symptoms are frequent desire to urinate, painful urination, pain in the bladder with reflex pain in the perineum and rectum, often with spasm of the sphincter ani and perineal muscle. The urinalysis findings are generally negative except as to the presence of occult blood, which may be intermittent in its presence. I have found Hunner's description of cystoscopic appearance so accurate and so helpful that I give it:

> On cystoscopy, one's attention is not infrequently first arrested by a glazed, dead white appearance of a portion of the bladder mucosa. In such an infiltrated area the vessels may have a broken or "choppy" appearance, only short segments of vessels appearing in the extra pale surface. One may see a dead white scar area with a small congested area in the immediate neighborhood; and while one is examining this area, or after one has touched it, the congestion becomes marked and may even begin to ooze blood. Sometimes an area of edema appears, the mucosa taking on a deep red congested appearance and being raised above the general mucous level. This area of edema may occur immediately about the ulcer area, or it may appear on a portion of the wall at some distance from the ulcer. It may be absent at several consecutive examinations and then appear at a subsequent examination. It is particularly likely to be seen if the patient is in the midst of an unusually bad period of bladder symptoms with strangury.

In certain of these cases I have observed a slight granular appearance suggestive of primary tuberculosis, but which in the light of Hunner's researches we now know to be due to the development of minute cysts with mucous lining.

CAUSES OF PUNCTATE ULCER

The cause of punctate ulcer has not been reduced to a demonstration. In his earlier cases Hunner ventured no conjecture. This was justified in view of the fact that the condition obtained without an antecedent history of bladder infection either gonorrheal or mixed, with no childbearing and no evidence of primary tuberculosis. A little later he became impressed with a possible etiology in focal infection. This was fortified by the frequent coincident occurrence of punctate ulcer with rheumatic and arthritic conditions and by the demonstrated connection of pyorrhea and tonsillar infection with a number of his cases, as in one of the three that I present. This phase of the subject can be developed only by longer observation with a careful collation of facts.

PATHOLOGY OF PUNCTATE ULCER

The pathology of this condition, so far as it has been developed, seems to be that of a chronic interstitial nephritis involving to a greater or lesser degree all the layers of the bladder wall. The involved area seems to become chronically and statically edematous. In certain very limited areas this interstitial process encroaches on the epithelium, and by cutting off the capillary supply causes macular necroses. The areas thus deprived of their epithelium are generally round and from 2 to 3 mm. in diameter. In some instances they are slightly elongated. These minute ulcers seem smaller through the cystoscope than they do after removal. A large number of these ulcers form over a considerable area, generally on the anterior wall and the vortex, and may be from 2 to 6 cm. or more in length and from 1 to 4 cm. or more in breadth. They are sometimes associated with minute cysts of follicular origin. The underlying deep layer of the mucosa is the seat of a true hypertrophy, which by virtue of its permanent character and its influence on the nutrient supply to the epithelium is a determining factor in the incurability of the ulcers, which show no effective tendency to reparative process.

OPERATIVE TREATMENT

The clinical history of these cases, the absence of all tendency to spontaneous recovery, and the failure of all so-called conservative methods of treatment, interpreted in the light of the pathology of the condition and in the light of demonstrated recovery following operation, all point to excision of the ulcer-bearing area as the only rational method of curative treatment. The procedure devised for this purpose, while bold and radical, has the merit of being rational and the added virtue of being successful. The original procedure, as devised by Hunner, the extraperitoneal method, as I understand it, was exemplified in principle with only slight variations in detail by the various steps employed in my first case:

The bladder was filled to distention with a solution containing iodin dissolved in an iodid. The patient was put in the Trendelenburg posture. A Pfannenstiel incision was used to approach the bladder, which was easily reached. The connective tissue, however, did not yield readily in the effort to separate the bladder, especially from the peritoneum covering the anterior wall. The peritoneum was, however, pressed well down from the posterior surface, after which the edematous area, that is, the ulcer-bearing area, could be readily outlined by palpation. Considerable hemorrhage was experienced in this stage of the operation.

The bladder was now collapsed by catheterization and an ellipse of the bladder wall about 6 cm. in length and 3.5 cm. in width was freely exsected. The cut edges of the bladder wall were stretched together by means of fine chromicized catgut, care being taken that there should be no overlapping in the approximation. The peritoneum now came readily over the now resected bladder, and the incision was closed in the usual way, but with a cigaret drain. A mushroom catheter was left in the bladder. The drainage was discontinued in forty-eight hours. The bladder was washed out once daily by gently throwing into it an ounce of a 0.5 per cent. iodized water. The urethral drainage was kept up for fourteen days, the last four of which could probably be set down to excess of caution.

The second method, the transperitoneal procedure, was employed in my second and third cases. This differed from the preceding only in these particulars:

(*a*) The abdomen was opened in the median line from near the pubes to the umbilicus.

(*b*) A vertical incision was made through the cystic peritoneum, beginning on the posterior curvature of the fundus and extending forward and down in front as far as the estimated extent of the ulcer-bearing area.

(*c*) The peritoneum was then peeled back laterally until the fundus could be buttoned out through the slit.

(*d*) The distended bladder was then collapsed by catheterization and the edematous area excised.

(*e*) After this the bladder wall was closed.

(*f*) Over this closure, the peritoneum was stitched together.

In neither of these two cases was there enough oozing to justify drainage; but if subperitoneal drainage should be required, it could be done safely with either a transperitoneal cigaret drain, or by a similar drain arranged extraperitoneally and brought out through the lower angle of the incision. Drainage from the inside of the bladder, if needed, is provided for by the self-retaining catheter.

CONCLUSIONS

1. Punctate ulcer of the bladder, and the pathologic changes associated with it, is a definite clinical entity.
2. The pathologic condition is not only chronic, but also irremediable by so-called conservative methods.
3. The usual limitation of the ulcerative process to the anterior wall and vortex of the bladder makes it surgically accessible.
4. The treatment by excision of the ulcer-bearing area is justified by its demonstrated practicability and by its equally demonstrated results.

5 West Eighth Street.

EMPYEMA FOLLOWING INFLUENZAL PNEUMONIA

OBSERVATIONS ON THE EPIDEMIC AT CAMP GRANT, ILL., SEPTEMBER-OCTOBER, 1918*

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CAMP GRANT, ROCKFORD, ILL.

The respiratory diseases became a matter of great and sad interest in our cantonments last winter by the appearance of an epidemic of hemolytic streptococcus infection and again in the fall by the epidemic of influenzal pneumonia. Both affections are quite different from the ordinary lobar pneumonia as we used to see it in our practice, sporadically, and at times in greater numbers approaching small epidemics.

From a surgical point of view, naturally the empyema following these infections is of the most importance. Just as we grouped the pneumonia into three types, I shall here distinguish strictly between: (1) the empyema following hemolytic streptococcus pneumonia; (2) that following lobar pneumonia, and (3) that following influenzal pneumonia as we have it at present.

Last winter, when the streptococcus epidemic struck our camps, surgeons acquainted mostly with the empyema following common lobar pneumonia were of the opinion that an accumulation of pus or infected serum should be evacuated as soon as discovered, and should be drained through wide incision, preferably by costectomy. The results of such early operations in streptococcus empyema were so lamentable that the Surgeon-General sent an empyema commission to Camp Lee to study the question. The report of this commission[1] brought out several points: First, not to operate as long as the pneumonic process was in existence. Second, to aspirate if the quantity of serous exudation in the chest was such as to interfere mechanically with respiration. Third, to operate only after the pneumonic process had subsided, when real pus has formed, by intercostal incision or better by rib resection. These rules were such excellent ones that when the Empyema Commission operated on twenty-three patients at Camp Lee, there was only one death, whereas the previous mortality had been as high as 50 per cent.

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* Read before the Camp Grant Medical Society, Nov. 19, 1918

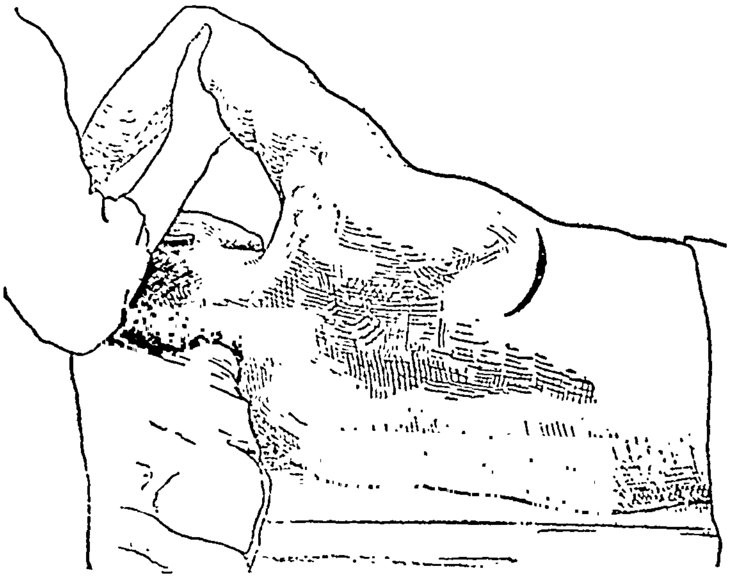

Fig. 1.—Incision made by forming a flap from 3 to 4 inches long, convexity downward, from the postaxillary line backward.

DIFFERENTIATION OF INFLUENZAL AND STREPTOCOCCUS EMPYEMA

The principle laid down for the streptococcus epidemic does not hold good for the influenza epidemic we have just passed through, for the following reasons: The exudation in the chest during the influenza epidemic does not occur early during the pneumonic process, as it did in the streptococcus type. In the latter, we had a true pleuropneumonia in which the exudate was capable of absorption. Often by the fourth or fifth day of pneumonia there was such a large amount (liters) of exudation in the chest that it imperiled respiration by its mere quantity. For these cases, early and repeated aspiration is the rule, whereas costectomy at this time was an error on account of the pneumonic process still existing, and led to a high mortality. In our present, the influenza type, we had hardly any case in which an exudate occurred during the first or second week of pneumonia large enough to cause interference with respiration. We aspirated several cases during the second week, when it was hard to decide whether complete consolidation of the lung or pleuritic effusion interfered with respiration, and never found more than 100 c.c. of cloudy serum. Also, postmortems of the many patients who unfortunately succumbed in the first few days or the second week of influenzal pneumonia did not show large pleuritic exudates; a few times 1,000 c.c. were found, but never enough to embarrass respiration by its pressure. The liters of exudate present in the streptococcus pneumonia during the height of the pneumonic process were not seen this time; therefore the question of early and repeated aspiration in this epidemic is not to be considered. In the influenzal pneumonia epidemic as we have it now, the complications of empyema do not arise before about the fourth week of the illness.

Our epidemic started, Sept. 19, 1918. Our pathologist, Capt. E. F. Hirsch, reported the first necropsy finding of small amounts of seropurulent exudate, October 9; more such cases were found, October 11. On this day the first pus in the living was found by syringe in a case of pneumonia. This patient was aspirated, but only 120 c.c. were obtained. The patient died, October 14. Necropsy revealed only 200 c.c. of the same type of exudate, but a solid consolidation, by bronchopneumonia process, of the whole left lung. The same holds good of many other aspirations at that time. The first empyema of large quantity came to operation, October 19, exactly one month after the onset of the epidemic. Here one may see again the difference between the two epidemics. In the first (streptococcus) epidemic, the pneumonic process itself is accompanied with large pleuritic exudation. In the influenza epidemic, no such early exudate occurs to any extent; there is nothing to aspirate. If an empyema follows the influenza type, it takes four weeks at least to get an exudate that can be called empyema. Before that time we may have small amounts of serofibrinous exudate, which, in my opinion, is capable of being absorbed with the subsiding of the pneumonia, as the large exudate in streptococcus pneumonia.

A second difference of the exudates of streptococcus and influenzal pneumonia is its character. With streptococcus pneumonia we have a thin, gray-reddish fluid with small flakes that change into real pus only very late. The influenzal empyema, as soon as it is of any size, is thick and purulent and contains nearly always more or less, and sometimes, indeed, very large quantities of thick, fibrinous masses. For this reason the former can be easily aspirated by trocars and small tubes. The latter needs drainage through a large opening. Even if mixed infections of pneumococcus and streptococcus are present, the prevailing one will determine the nature of the exudate. In this epidemic the pneumococcus seems to be the predominating organism, so far as our present knowledge of the bacteriology goes.

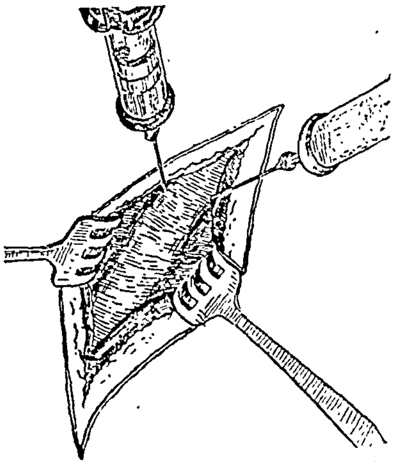

Fig. 2.—Injection of intercostal nerves along the eighth rib with a local anesthetic.

The two main differences, therefore, in the two epidemics are, first, the time of appearance of empyema, and, second, the nature of the empyema. The streptococcus empyema comes early with the pneumonia, the pneumococcus empyema follows the lung process late. The former can be easily aspirated; the latter is too thick for such handling. In the former, open operation should not be performed, but aspiration may be performed, if necessary, on account of pneumonia still existing. In the latter, because of the late appearance of the pneumonic process, operation can be performed with more safety.

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[1] Review of War Surgery and Medicine, Surgeon-General's Office, 6, No. 1.

DIFFERENTIATION OF INFLUENZAL EMPYEMA FROM THAT FOLLOWING LOBAR PNEUMONIA

After differentiating the present influenzal pneumonia and its empyema from the streptococcus type, we still have to distinguish the present empyema also from the one common after usual lobar pneumonia. From every point of view—the clinical observation, the frightful severity of the pneumonic process, with a death rate of more than 35 per cent., the postmortem findings of a necrotizing, bronchopneumonic process, and also some difference in the behavior of the pneumococcus as to typing, etc.—this influenzal pneumonia is different from the lobar type as we knew it. Whether a special virulent character of a pneumococcus or some other infecting agent is responsible for this difference remains to be seen. The present empyema is thus distinguished from the empyema following the usual lobar pneumonia:

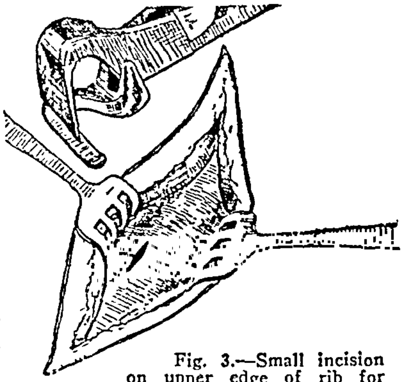
Fig. 3.—Small incision on upper edge of rib for introduction of Doyen's rib shear.

1. It is complicated more frequently by other metastatic abscesses, and for this reason is accompanied by a greater mortality.

2. In roentgen findings, fluid levels are absent. The exudate takes in the whole chest or is encysted.

3. Large lung abscesses are found frequently complicating lobar pneumonia in roentgenoscopies as well as in necropsies. In influenzal pneumonia they are not found.

As to the first of these three points, in this epidemic, the empyema is not of such good prognosis as in those we used to see in the occasional lobar pneumonia. Our death rate for empyema will probably run up to 20 per cent.,[2] and the reason for this is, as I shall show, that the empyema was in most cases only one of the complications following the pneumonia. Often the other lung became infected secondarily by a bronchopneumonic process, or pneumonic meningitis, peritonitis, cholecystitis or deep muscle abscesses existed simultaneously with the empyema. In lobar pneumonia, such complications are rare.

As to the second point, in lobar pneumonia the roentgen ray will show straight fluid levels of the pus filling the thorax; these levels will give a horizontal line in a sitting posture and a vertical line with the patient lying on his healthy side. In influenzal empyema, in seventy-five cases roentgenographed, we have never found a fluid level. The density extended more or less over the whole chest or was of the encysted type. No doubt a difference in infection causes this difference in physical behavior of the pus.

As to the third point, large lung abscesses, as we found them in lobar pneumonia, we have never seen in roentgenograms in 2,700 cases of influenzal pneumonia that we had in this epidemic at Camp Grant or in any necropsies (of which 198 were performed). In opposition to this, in perhaps fifty cases of lobar pneumonia observed at Harper Hospital at Detroit, in 1914 and 1915, we had six lung abscesses complicating recovery. In roentgenograms as well as in necropsies of the influenzal type of pneumonia we find often only small multiple abscesses following the bronchial tree and necrotizing the surrounding tissue, a carbuncle-like process never leading to an abscess of any amount.

We have seen that influenzal empyema follows late, after the bronchopneumonic process has more or less subsided, contains thick pus, and is subject to many complications. For these three reasons, operation should be performed with sufficient drainage as soon as the condition is diagnosed.

DIAGNOSIS OF EMPYEMA

The diagnosis of empyema should be based on: (1) the observation of the patient and his chart; (2) physical signs; (3) exploratory puncture, and (4) the roentgen ray. The chart of the patient is nearly always more or less typical for empyema. After the pneumonic process has disappeared by crisis or lysis, we have an intermediate period of from three to six days free of fever. Then the intermitting pus temperatures of the empyema period begin. This should call our attention to the probability of pleuritic infection. The physical signs—dulness on percussion, abolished respiratory sounds, and lessened vocal fremitus—will be always present if the empyema takes place in the whole side of the chest. But in encysted empyema enough lung tissue may lie over the pus cavity to give respiratory sounds, and air sound on percussion, and these symptoms have kept our medical friends who rely too closely on one symptom from referring patients at the proper time for operation. The exploratory needle will always show pus if the empyema fills the whole chest. But a negative finding, dry tap, should be taken with great caution for several reasons: The needle may not reach the pus. This can be prevented by using needles 3 inches long and thick enough so that they do not become plugged by fibrin masses. In some pneumonias, especially after often repeated aspiration, pyopneumothorax may exist, and the aspirating needle may reach only the air on top of the pus. This can be prevented by letting the patient roll over from his side on his back after the needle has been introduced, so that the air goes upward and the needle reaches the pus. Encysted empyemas are very hard to reach and should be punctured only after studying the roentgenograms closely to get an idea as to the location. Most of them, in my opinion, are of interlobar origin, and can usually be reached higher up in the scapular line. The finding of clear serum in the syringe does not always speak against the presence of pus, because in influenzal exudate, not infrequently sedimentation of the pus takes place, and the upper layer will be clear serum and farther down we find all transitional stages to thick pus. The last word in the diagnosis of empyema will have to be said by the roentgen ray, which fortunately, by means of the modern portable apparatus, may be employed for the examination of the most seriously ill. In classical empyema, the roentgenogram

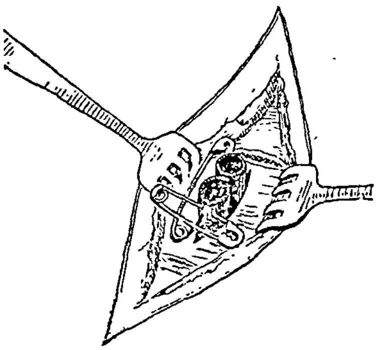
Fig. 4.—Introduction into empyemic cavity of two drainage tubes of soft rubber 3 inches long and one-half inch in diameter, pinned together in the manner shown with two safety pins, so that space is left for the introduction of Dakin tubes.

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[2] Jan. 22, 1919: The mortality of the influenzal empyema was exactly 19.5 per cent., including all cases of complications.

will show a density over the whole chest corresponding to the dense shadows the liver gives. Encysted empyema will show more or less circumscribed dense areas which, as to their location, should be studied well by fluoroscopy and by the stereoscopic pictures. Only in this way were we able to find pus in every one of the seventy-four cases in which we operated.

After diagnosis has been made certain, there should not be any more delay in operating; and in all these influenzal empyemas, even if encysted, the patients are in such a condition that a classical operation can be done. There is not the counterindication of pneumonia still present, as in streptococcus empyema, and an early evacuation of the pus will to some extent prevent other metastatic infections than already exist. Our friends the internists usually mention cases in which an empyema has been carried for many months by a patient without doing any harm. This is an exception and not the rule; and even this exception has to my knowledge led to deaths by sudden breaking of the abscess into previously noninfected tissue.

TREATMENT

Costectomy is the method of choice for treating the empyema following influenzal pneumonia. Aspirations and intercostal incisions should be only exploratory or temporary measures. In our seventy-eight operations of this series we aspirated only twice to relieve pressure, a day previous to the operation. Once, when a meningitis complicated the empyema, we operated by an intercostal stab.

Only local anesthetics should be employed in operations for empyema. Sudden deaths from suffocation on the table from pus suddenly breaking into the trachea have been so frequent under general anesthetics that it is criminal to give them to these patients. It may happen that the first breaking of an empyema into the bronchus occurs while the patient is on the table. Two of our patients, while being operated on, coughed up several ounces of sputum. Two postmortem specimens showed fairly free communication of the empyema with a large bronchus. Furthermore, the local anesthetic, if administered properly, is fully sufficient to permit one to operate quietly and without causing great pain to the patient. In small children, a whiff of anesthetic will suffice for the operation without abolishing the laryngeal reflex.

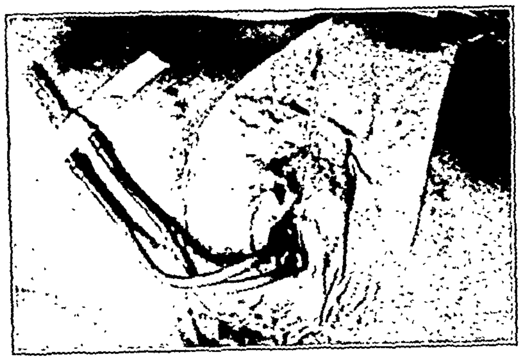
Fig. 5.—Method of introducing Dakin tubes through the large drainage tubes. The latter are fastened securely in the wound with two 2-inch adhesive strips fixed to the safety pins so that no coughing will expel the tubes.

TECHNIC OF OPERATION

The patient lies on the side opposite to the empyema, the arm over the head to elevate the scapula away from the place of incision.

An area in the shape of a parallelogram around the rib to be resected, usually the eighth, is infiltrated with a local anesthetic, a small needle being used for the first injection, followed by a thicker needle 3 inches long to get the whole area from the same puncture hole. The infiltration takes in the skin, subcutaneous tissue and muscles. The middle of the parallelogram lies in the scapular line, and extends backward within 2 inches of the spinal line, forward to the postaxillary line. Infiltration should be deep. The incision made is between 3 and 4 inches long and curves slightly, with the convexity downward. The flap so created is turned upward, including skin, fascia and superficial muscles until the eighth rib appears clearly. Two or three muscle vessels require ligatures. The intercostal nerve, along the eighth rib, is then injected below and above the rib. This injection is made carefully so that the needle does not enter the nerve before a few drops of solution are injected; otherwise the patient will complain of severe neuralgic pain in the intercostal nerve. This injection is important; it renders the rib section practically painless.

A small cut is made on the upper edge of the rib, and a Doyen rib shear is introduced around the rib and pushed backward and forward until 2 inches of the rib are exposed. The rib is cut first anteriorly and then posteriorly. The pleura is incised in the space from which the rib piece was removed. Pus begins to appear immediately and is emptied by turning the patient slowly backward. Any obstructing fibrin masses are removed with forceps. A double drainage tube pinned together with safety pins is introduced into the pleura surrounded by two pieces of gauze in the wound of the chest wall, and this is fastened securely in the wound by two 2-inch wide adhesive straps fixated to the safety pins attached to the tubes. This is important so that no coughing will expel the tubes. If neutral solution of chlorinated soda (Dakin's solution) is used, two small Dakin tubes are introduced through the large drainage tubes. A large absorbent pad covers the whole. These drainage tubes with the surrounding gauze are not changed for a week. The outer dressing is changed when necessary. The Dakin tubes, if used, are changed daily.

If in cutting the rib, injury to the intercostal artery should happen, it is ligated by a transfixing ligature, the artery being caught central to the lesion with some of the surrounding muscle fibers. There are no sutures put into the wound, as drainage will continue better without sutures closing the ends of the wound and creating a bottle-shaped abscess cavity. The curved flap will fall into the chest wall defect after the drainage is removed, or is drawn in by an adhesive plaster strap.

RESULTS

By this technic we have operated on seventy-nine patients. Of this number we have lost eleven, or about 14 per cent., and we shall probably lose a very few more by pyemic process; but this figure loses its significance, as to the value of the method, if I state that two of the patients that died had an extensive suppurative pneumococcus meningitis: two had empyema on the other side; one had gangrenous cholecystitis; two had abscesses in the mediastinum; two had endocarditis, and two had gangrenous bronchopneumonic processes in the other lung. No uncomplicated cases have been fatal, in spite of the fact that a good many of these patients were in a very low condition at the time of operation. Three patients with empyema on both sides were operated on in this series with an interval of two weeks in two cases and of three weeks in one case between the operations. Six of the patients living and operated on had metastatic abscesses; many had bedsores when transferred, showing the serious condition they were in at the time of operation. In 62 per cent. of the empyemas there was pure pneumococcus infection; in others, mixed pneumococcus and hemolytic streptococcus infection. The deaths were about evenly divided between the two groups. The first thirty empyema patients were treated with neutral solution of chlorinated soda. Of this group, eight died. Since then, the forty-nine remaining patients have been given dry treatment, with only three deaths.

While the first thirty patients may have been more seriously ill than the later ones, which is the case in many epidemics, the difference in the death rate speaks against the Dakin treatment. To anticipate the usual remark this statement provokes: The Dakin treatment was given in the proper way, adhering to all the details as to its administration.

In the after-care of these patients, proper attention is paid to caloric feeding, which is important to replace the immense loss of tissue substance caused by the profuse suppuration and also to fresh air and early muscle exercise. Special care is taken to elevate the arm on the operated side at every dressing, to prevent rigidity of the muscles. In the first cases of operation, healing is now taking place, one month after operation.

CONCLUSIONS

We have to differentiate in the treatment of empyema between three types:

1. The empyema following hemolytic streptococcus infection. This occurs early as an exudate in the first week of the pneumonic process, is thin, very copious, and capable of being absorbed, and should be handled, if necessary to relieve pressure, with aspiration, operating by costectomy, only after the pneumonia has subsided.
2. The empyema following lobar pneumonia. This sets in four weeks after pneumonia, is of good prognosis, and can safely be handled with costectomy.
3. The empyema following influenzal pneumonia. This also develops four weeks from the onset of the process. On account of serious and frequent metastatic suppuration, its prognosis is more severe than that of Form 2. It is best handled by thorough drainage, by costectomy under local anesthesia.

English Crime Figures.—Annual number of convictions for crime in Great Britain had fallen greatly prior to the war; since then the drop has been still more marked. Convictions, according to the British Prison Commission's report, fell steadily from 184,901 in 1908-1909 to 139,424 in 1913-1914, and during the war period the number was 104,000 in 1914-1915, 58,839 in 1915-1916, 43,678 in 1916-1917 and 32,773 in 1917-1918. The population of the prisons of England and Wales per hundred thousand in 1900 was 483.4, but has now sunk to 88.7. Convictions for drunkenness fell from 51,851 in 1913-1914 to 3,692 in 1917-1918. Those for men in the former year were more than double the convictions of women, while in the latter year convictions of women were considerably in excess of those of men. The lessening of convictions for crime is accounted for by various conditions arising out of the war, and for drunkenness on account of the restrictions on the sale of alcohol, chiefly, perhaps, notwithstanding the rise in wages and greater prosperity of the classes formerly most given to drink. A social system which could facilitate the means of employment while at the same time maintaining sobriety at its present level, would incidentally find in such measures the solution of the penal problem.—*Medical Officer.*

FRACTURE OF CERVICAL VERTEBRAE, WITH RESTORATION OF BONY SUBSTANCE

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As I was not present at the time this injury was received, I give excerpts from the written statement of the patient, who was a lieutenant in the Aviation Service:

History.—Statement by patient: "Feb. 11, 1918, about 4:45 p. m., Lieutenant M. and I, who were on a cross country flight, fell at Jennings, La. Lieutenant M. was killed instantly, and I was rendered unconscious. Local doctors treated me and shipped me back to the post hospital, Gerstner Field, La., where I was treated for a broken right clavicle, broken nasal bone and a bruised knee. Treatment continued for about six weeks, at the end of which time thirty days' sick leave was granted me. I had continuous boring headaches and pains running down my arms. I could not move my head, which was drawn over to the right side and forward. Before leaving the hospital, however, on my sick leave, roentgen-ray pictures were taken in which it developed that I had fractured fourth, fifth and sixth cervical vertebrae, with partial dislocation between the fourth and fifth. . . .

Fig. 1.—Front view of patient before treatment, showing typical deformity of dislocation of cervical vertebrae.

"On my arrival at home, Richmond, Va., I went to see a surgeon, who examined me carefully, and then sent me to another physician, who in turn sent me to another physician to have roentgen-ray pictures taken. After examination and study of these the doctor decided that the only treatment possible for my injuries was an electric baking process (thermotherapy). I then consulted my surgeon again and he sent me to Johns Hopkins Hospital, Baltimore. There I was examined by three physicians, and they decided that an operation was not necessary and that nothing could be done, but advised me to consult another doctor of Johns Hopkins. He said the bones were ground off and nothing could be done. However, he advised me to have a leather collar made, which I was to wear six weeks or more, at the end of which time I was to be treated by an electric baking process (thermotherapy). I returned to my home in Richmond, and again consulted my surgeon, who said he would write the particulars of my case to the post surgeon, Gerstner Field, La. All this time I suffered with boring headaches and pains in my arms. After my leave expired I returned to Gerstner Field, La., and went under the care of Major L. F. Luckie, M. R. C., who had, in the meantime, become post surgeon."

Examination: June 1, 1918, the patient came under my care. His head was drawn forward and to the right, the muscles were stiff and hard on the right side, and his face showed that he was suffering pain. He complained of boring headaches and pains in his arms, and stiffness of the muscles of the right side of the neck, and was very much discouraged in regard to his condition. I examined the roentgenograms that had been taken of this patient before he left the hospital on leave of absence and immediately ordered him to be placed in bed, his whole appearance showing that he was an ill man. He grew morbid, and when told that we would try to do something for him, seemed indifferent to any suggestion of treatment.

Treatment.—Turkish towels were wrung out in hot water and applied to the patient's neck for twenty or thirty minutes, and then his neck was massaged with camphorated oil. This was done to soften the muscles in preparation for the appliance that I was constructing for him to wear. The dentist was requested to take plaster-of-Paris impressions of the back of his head and neck and of his chin to the angles of the jaws. I then took these impressions and ran models. I obtained two pieces of sole leather of medium thickness, soaked them thoroughly and placed them on the cast, burnishing them down so as to fit the cast of the chin and the back of the head. I then placed the impressions over these casts, tying them together and letting them dry in the sun. I then measured the height from the shoulder upward as far as I wished the point of the uprights on my appliance to extend, making the pattern of these from malleable metal, bent as shown in the illustrations. Pads were made for the shoulders, metal strips were made to fit these pads, and the uprights were soldered to the metal strips. These were then laced on the pads. Two pieces of metal were then placed before and behind, horizontally, reaching from one metal strip to the other, set with winged nuts so the appliance would not move outward or inward. A belt was attached by leather strips before and behind and placed around the lower border of the ribs; straps were placed on the chin piece and head piece, these straps extending upward to small bolts with eyes, the bolts running through an opening in the vertical supports. The straps were threaded through the loops of the bolts and could be lengthened or shortened by turning the winged nuts or using buckles on straps or turnbuckles on each of the uprights, permitting raising or lowering of the patient's head. June 10, this appliance was placed on the patient, and gradually, each day, the winged nuts were tightened so as to bring the head into the proper position. The hot applications and massage were continued daily.

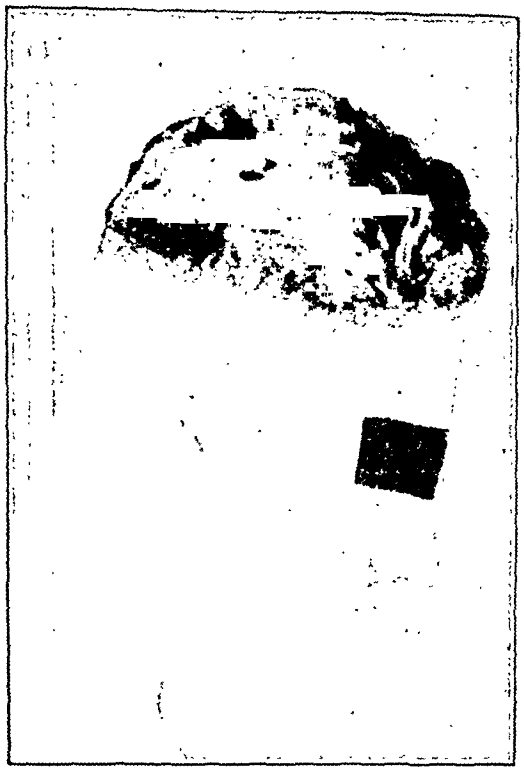

Fig. 2.—Side view of patient before treatment.

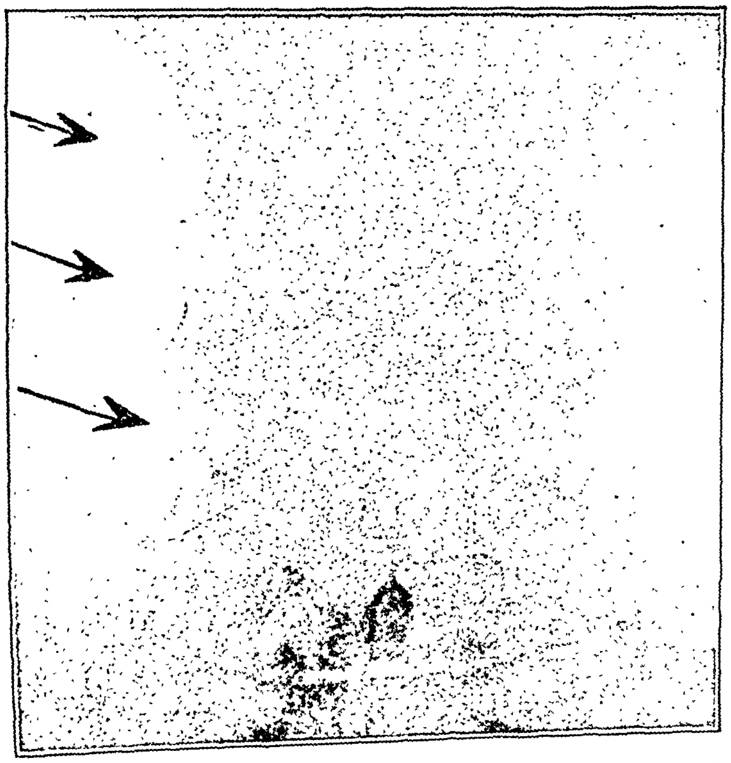

Fig. 3.—Anteroposterior view, showing fracture of vertebrae as well as dislocation of the fourth vertebra.

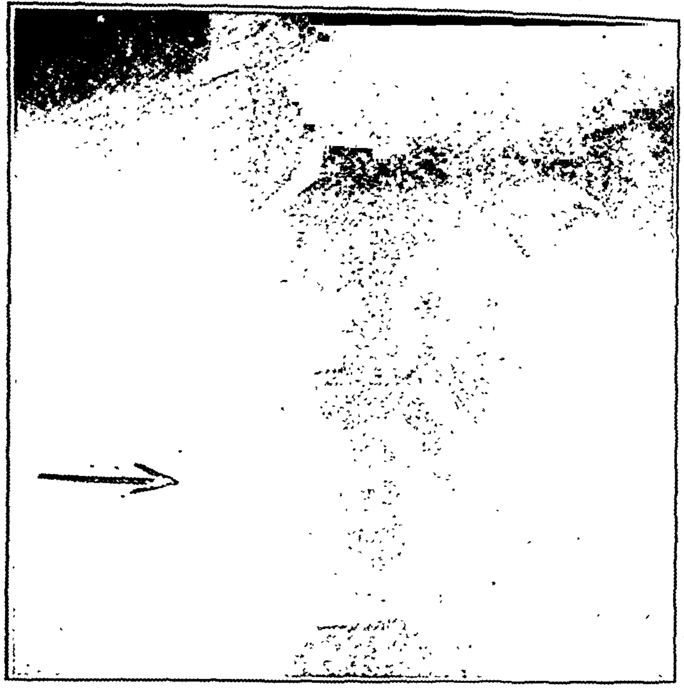

Fig. 4.—Side view, showing dislocation; by Dr. Gray, Richmond, Va.

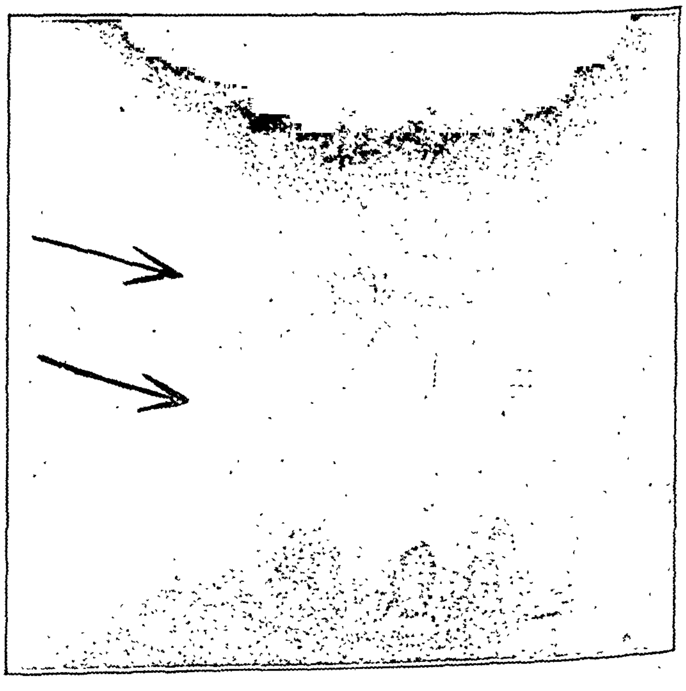

Fig. 5.—Condition after return of patient from leave.

This appliance literally hung the patient from his own shoulders, and was the only treatment, outside of massage, that was used in this case. The value of the appliance was that immobilization was obtained and the vertebrae were separated and held separated, so that the new bone cells were protected and growth and recalcification of bone permitted.

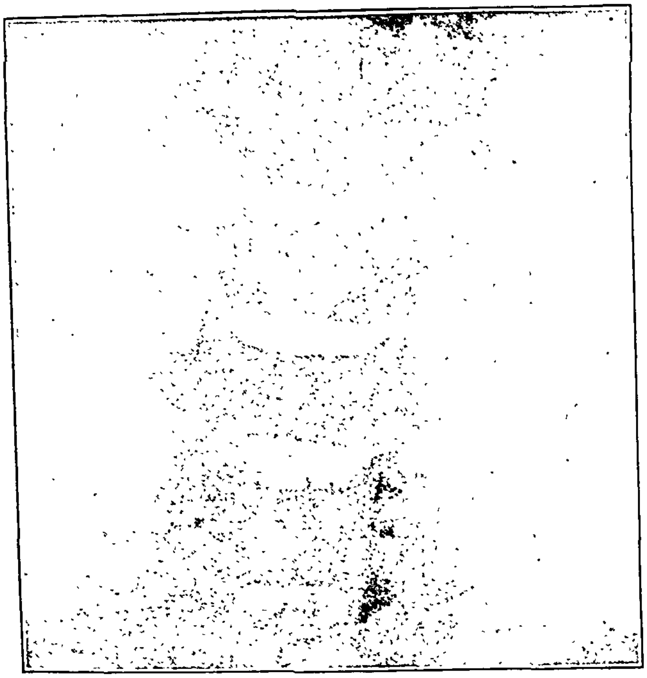

Fig. 6.—Condition, August 23, the day the appliance was removed.

Another advantage of this appliance is that it permitted the patient to be out of bed, thereby keeping up his physical strength and his spirits. Another very important advantage was that the patient never took the appliance off for massage or for sleep, thereby keeping the neck on a stretch all the time that he was under treatment.

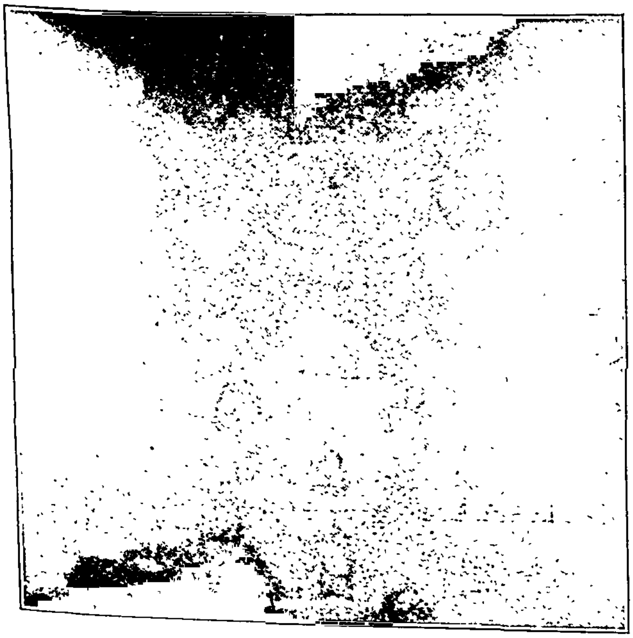

Fig. 7.—Condition eighteen days after appliance was removed.

It has been the common custom in spinal cases to place on patients a plaster-of-Paris jacket, after first stretching them by the different methods in use. After the stretch has been relieved, the patient's vertebrae rest on each other again, and the result is that few patients, if any, ever recover completely, because the bones are still grinding on the new cells that Nature is trying to form, and absorption of bony substance takes place.

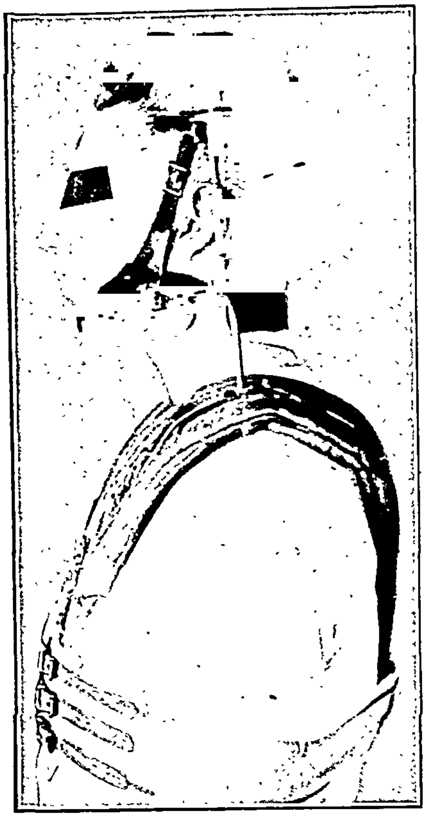

Fig. 8.—Apparatus in place: Patient hung from his own shoulders continuously.

In the patient's statement of his case it will be noted that he told that the bones had been ground off. This is shown in the roentgenograms.

Interesting observations that may be noted are:

1. The appearance of the patient's face before the brace was put on (Fig. 1).
2. Typical position of the head in dislocation of the cervical vertebrae (Figs. 1 and 2).
3. The absorption and ground off appearance of the bones in Figure 3, taken at this post before the patient's leave, and in Figure 4, taken in Virginia.
4. The outline of the vertebrae, after removal of the appliance, August 23 (Fig. 6), and also *the condition* shown in Figures 12 and 13 as compared with Figures 1 and 2.

The pain in the head and arms began to disappear twenty days after the treatment had been begun, and has entirely disappeared.

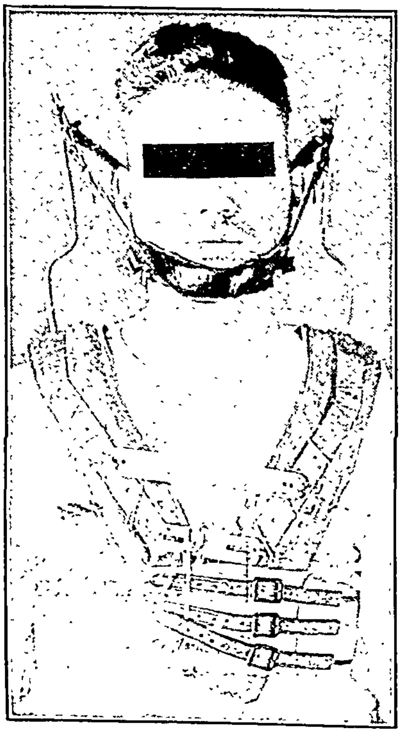

Fig. 9.—Apparatus in place; front view.

This is the only case on record of a pilot's breaking his neck in an areoplane accident and being sent back to flying duty again. With the exception of a stiffness of the muscles from long-continued wearing of the appliance, and ankylosis between the fourth and fifth vertebrae, which occurred before the case came under my care, this patient is in good shape and fine spirits.

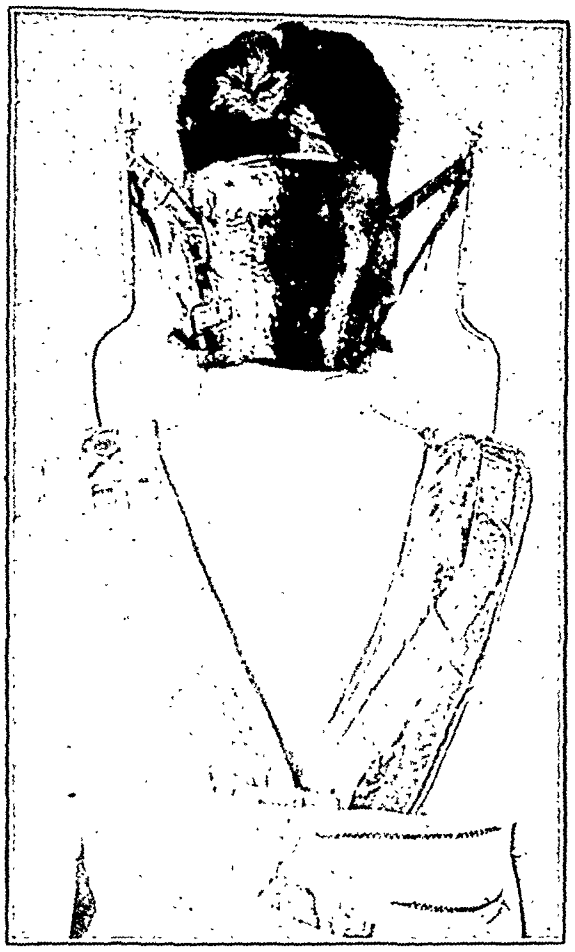

Fig. 10.—Apparatus in place; rear view.

He was happy to be able to work again for his country, with new inspiration to do his work better, if possible, than before.

It may be interesting to note that he passed the low oxygen test, which carries with it the test of the eyes, etc., by the Medical Research Laboratory, Sept. 4, 1918, and was graded in Class A, in which there are no restrictions as to altitude. The patient also took the revolving chair test for equilibrium and passed in Class A.

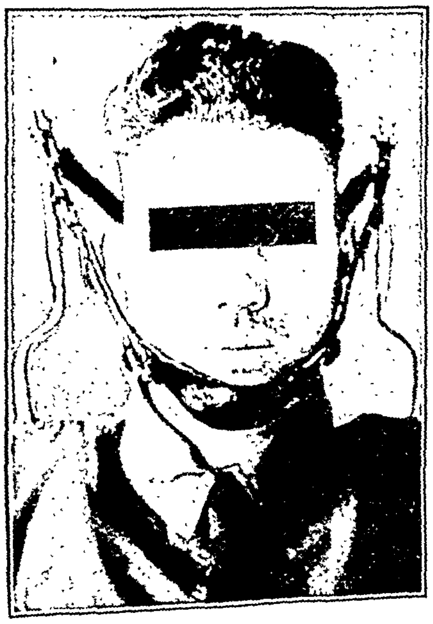

Fig. 11.—Patient dressed; shirt especially designed for wearing with appliance.

The appliance was made at this post, Sergeant Taylor of the machine shop doing the steel work, and the post shoemaker stitching the straps on the chin and neck piece. The idea for the appliance was suggested by the case of my father, the late Dr. J. B. Luckie, who was the first surgeon in the world to set a broken neck successfully.[1] His appliance was a modified Sayre jury mast with a plaster-of-Paris jacket. Although the patient lived for twenty-six years after having had his neck set, he could never do without the appliance.

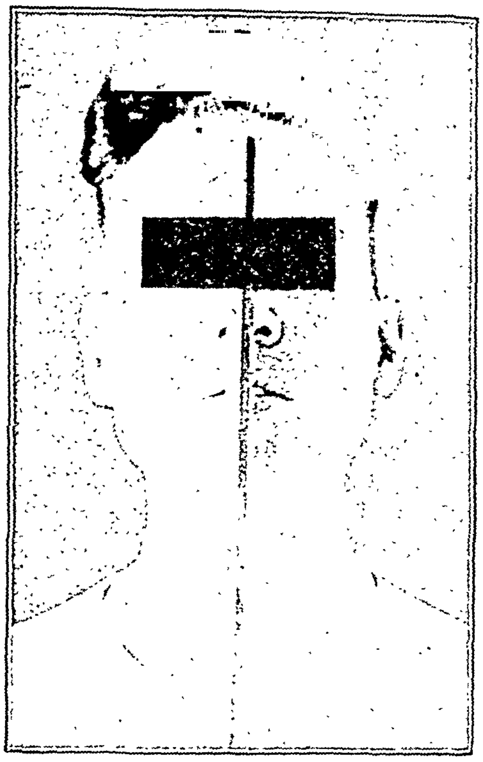

Fig. 12.—Result of treatment; front view. Compare with Figure 1.

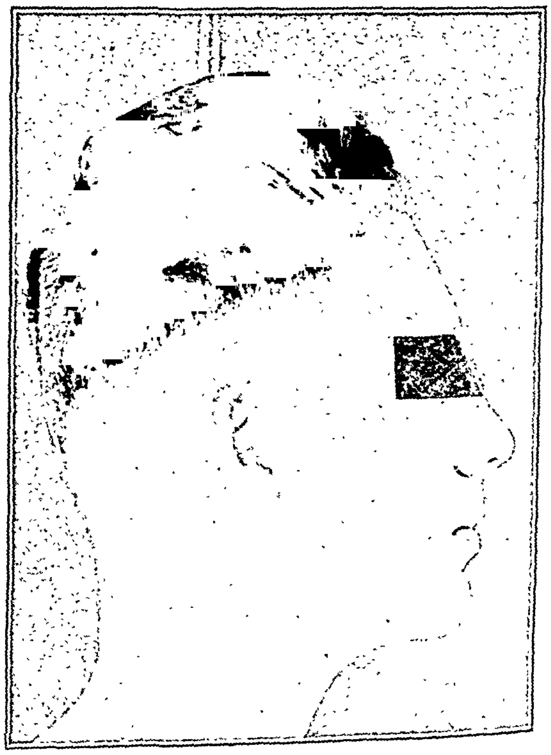

Fig. 13.—Result of treatment; side view. Compare with Figure 2.

The roentgenograms were taken by Lieutenant Cornica, M. C., of this post, and two by Dr. Gray of Richmond, Va. The photographs were taken by Lieutenant Erickson, post photographer.

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[1] Anomalies of Medicine, the case of Barney Baldwin. Kelly: Biographies of Great Surgeons.

Clinical Notes, Suggestions, and New Instruments

A NEW METHOD FOR THE STUDY OF BACTERIA [*]

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The rapid identification of bacteria is a matter of the greatest importance. Certain organisms have characteristic morphology or staining reactions, but in most cases it is necessary to make a culture of the organism before it can be identified, a process that requires hours or even days.

Modifications of a method that I have already described[1] furnish a means of studying the morphology of the cells and the colonial structure of young cultures of bacteria, many of which show very interesting and, I believe, distinctive characters in a surprisingly short time, that is, in from three to five hours.

The medium in its simplest form is a 50-50 mixture of nutrient agar and sterile milk.

The apparatus is of such a simple nature that it will be found in all bacteriologic laboratories. It includes pipets, microscopic glass slides, platinum needles, an incubator, common stains, etc. The pieces of apparatus that could be called special are a "moist chamber cabinet," a warm plate for drying the films, and forceps for handling microscopic slides; but makeshifts for these are easily found in the common equipment of all laboratories.

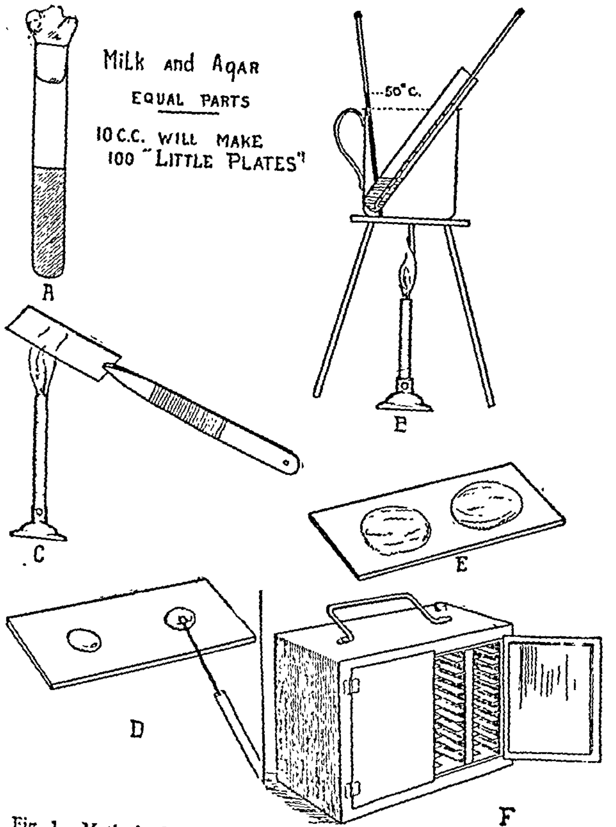

Fig. 1.—Method of making "little plates": *A*, milk and nutrient agar, sterilized separately and mixed in equal quantities; *B*, medium, melted and ready for use; *C*, flaming the slide; *D*, inoculating the medium and spreading the drops; *E*, slide ready for incubation in the moist chamber, *F*.

METHOD OF MAKING CULTURES

A clean glass slide is sterilized in the direct flame and placed on the table. When it has cooled down there is placed on it, from a pipet, two separate, medium-sized drops of the culture medium, which has been previously melted and cooled to about 50 C. Into one of the drops of the culture medium, the material containing the bacteria to be cultivated is introduced by means of a platinum loop and thoroughly mixed, while at the same time the drop is spread over the slide in a thin film. When the first drop is spread, the loop is carried over to the second drop, which is thus inoculated with a small fraction of the same material. This drop is spread in the same way as the first. As soon as this is done, the slide is put in a moist chamber and placed in the incubator. In this way two little plates are made on the same slide from each sample to be examined, containing quite different amounts of the inoculum.

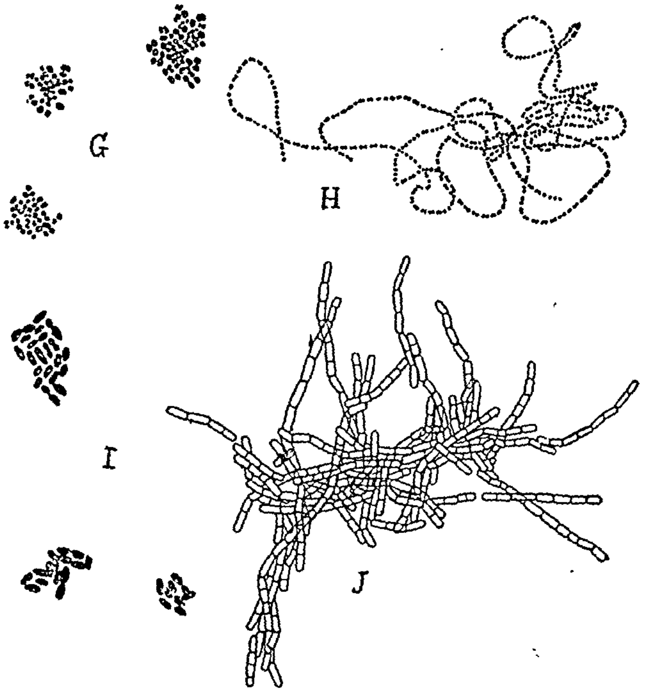

Fig. 2.—Colonies, four hours old, of organisms grown on the "little plates"; *G*, Micrococcus pyogenes var. aureus; *H*, Streptococcus pyogenes (?), from a throat culture; *I*, Bacillus coli; *J*, Bacillus subtilis. The drawings were made by Miss Margaret Brown under the camera lucida, and give the relative size as well as the shape and arrangement of the individuals in the colony.

It is necessary to work rapidly in making these "little plates" in order to prevent the agar from hardening before it is spread. It is also necessary to use aseptic technic at every step, except that I have not found it necessary to take any special precautions against air infection during the preparation of the plates, or to keep the edges and underside of the glass slides sterile. The method is illustrated in Figure 1.

INCUBATION

Immediately after being made, the little plates are put in a moist chamber where they are kept until the colonies grow to sufficient size to be examined. A few slides, as a makeshift, may be put in Petri dishes, the bottoms of which are covered with wet filter paper, on glass rods which keep them from getting wet. It is much more convenient, however, to have a "moist chamber cabinet" and when a large number of slides is used, it is quite necessary. Such a cabinet, especially designed for this work, is represented in Figure 1 *F*.

Whatever the form of the moist chamber, it is put in an incubator and kept at the temperature best suited to the needs of the organisms under study. The colonies usually attain sufficient size in the course of three or four hours to give the characteristic arrangement of the cells. If the colonies are allowed to grow much larger, the individuals become so massed that only those at the periphery are distinctly discernible, so that there is usually no advantage in large colonies.

When the "little plates" are removed from the incubator they are taken from the moist chamber and dried. The drying is an important step and is apparently best done rapidly by placing the slides on a warm plate kept at a temperature just below 100 C.

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[*] A part of the expense connected with this and further work of the same kind, now in progress, was met by an unknown business friend of Madison, who made his contribution through Prof. C. S. Slichter, chairman of a university committee on research.

[1] Frost, W. D.: A Rapid Method of Counting Living Bacteria in Milk and Other Richly Seeded Materials, J. A. M. A. **66**: 889-890 (March 18) 1916.

STAINING

When the slides are dry, they are ready for staining. They are put first in a 10 per cent. solution of acetic acid in 95 per cent. alcohol for one minute or more. They are then drained and put in Loeffler's methylene blue diluted 1:4 with distilled water. The slides are allowed to stain from two to three minutes and are then washed free from the stain in a jar of tap water. They are dried and are then ready for microscopic examination.

With practice it is soon possible to make these preparations in such a way that the colonies are deeply stained with the individual cells well differentiated and the background clear. The best results are usually obtained after the stain has been used for some time. For this reason the stain is used, in jars, over and over, rather than poured over the preparations fresh each time. So far, a diluted Loeffler's stain has been used exclusively; but it seems quite possible that other formulas can be developed and that perhaps other stains than methylene blue can be used to advantage. For example, it may be possible to use a red stain, such as fuchsin or safranin, which would be very desirable, especially in photomicrographic work. It is also quite possible, indeed, very probable, that stains can be used to bring out the metachromatic granules in the diphtheria and other germs. The double spore and the Gram stains have been successfully used.

AN IMPROVED SPINAL PUNCTURE NEEDLE AND PRESSURE APPARATUS

Abraham Levinson, B.S., M.D., Chicago

It is now generally recognized that spinal puncture is one of the most useful diagnostic procedures, and that the pressure of the cerebrospinal fluid is a useful guide in the diagnosis of many diseases of the nervous system. Many needles have been used for doing a spinal puncture since Quincke first described the procedure. In using most of the needles, however, one is unable to tell whether or not he has reached the subdural canal until he has withdrawn the stylet entirely. If the canal has been reached, the fluid comes out with a greater or lesser force on removal of the stylet, and by the time the manometer is introduced into the needle, as for instance in the Quincke apparatus (Fig. 1), too much fluid has been lost to give a correct pressure reading; for it has been found that the pressure is greatly lessened, even if only a few drops of cerebrospinal fluid have been removed.

In order to prevent the loss of fluid in taking the cerebrospinal fluid pressure, and in order to make it easier to determine whether or not one has reached the subdural canal, I have devised the apparatus and method herein described.

The apparatus (Fig. 2) consists of a specially devised needle and a glass manometer.

The needle is the ordinary medium sized spinal puncture needle with a short piece of glass mounting and a stopcock. The glass tubing (*A*) enables one to see whether the spinal canal has been reached with the first puncture. One need only withdraw the stylet beyond the glass tubing, and if the spinal canal has been reached, the fluid withdrawn will be seen immediately through the glass. If no fluid makes its appearance, the stylet can be inserted again and another attempt made. The fear of breaking the glass on boiling the needle for the purpose of sterilization is no objection. I have boiled the needles repeatedly, without ever breaking the glass.

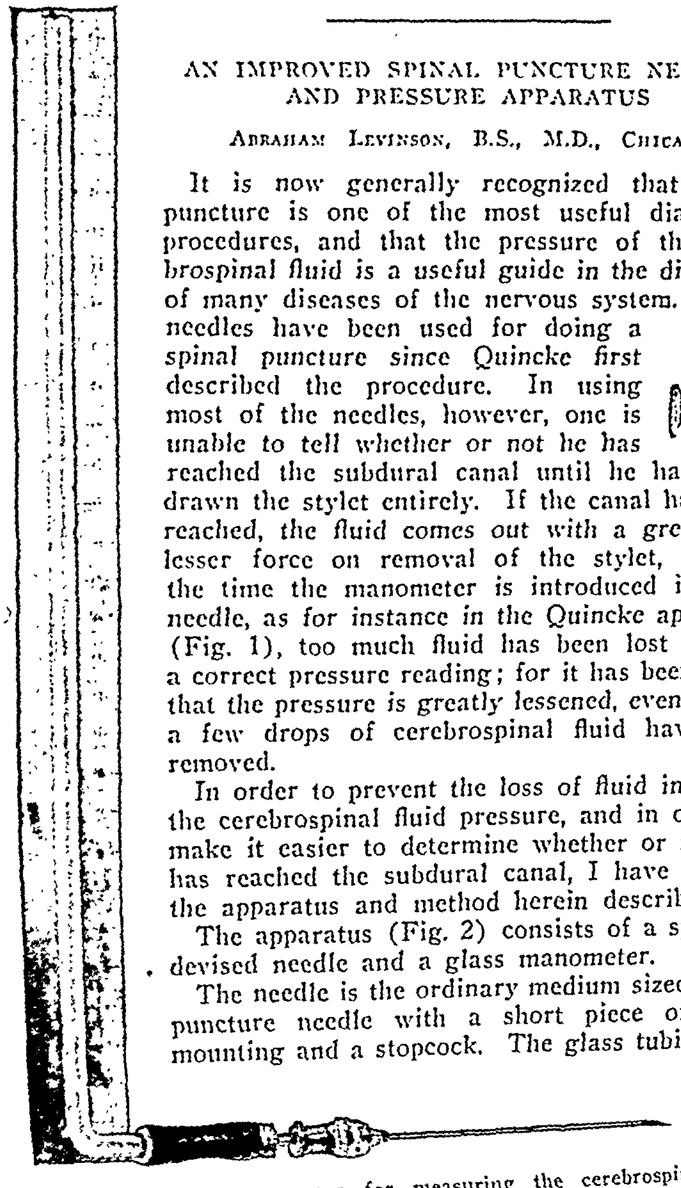


Fig. 1.—Quincke apparatus for measuring the cerebrospinal fluid pressure.

The needle has a three-way stopcock (*B*), the distal end of which is about three-fourths inch long. This length is required in order to allow space from the stopcock to the end of the needle so as not to lose any of the fluid, as is the case when the valve of the stopcock is near the end of the needle. The stylet of the needle is long enough to reach from the distal to the proximal end of the needle.

The manometer (*D*) consists of a long glass tube of 1 mm. bore which is inserted into the projecting end of the needle (*C*). The glass tubing is 700 mm. long, as this was the highest pressure attained in any case studied. For convenience, it is divided into two portions, with a metal cap at the top of the first portion so that the other one can be screwed on. This makes the manometer convenient to carry in any small instrument case. Thick glass tubing is used for it so that it does not break easily in handling. A metal tape is attached to the glass to measure the pressure.

The needle (with the piece of glass tubing at the end, the stopcock and its prolongation) with the stylet inside is introduced into the spinal canal. After a snap has been felt, so that one is reasonably certain the subdural canal is reached, the stylet should be removed to a point beyond the glass attachment. If fluid is seen in the glass tubing, the stopcock (*B*) is turned at right angles so that the handle points upward. This shuts off the needle and prevents the fluid from coming out. The long glass tube (*D*) is then attached and the stopcock turned so that the handle points opposite the manometer. The fluid will then rush into the tube. When the fluid has mounted to the highest point, the pressure is read off in millimeters of water. If no fluid is seen coming out when the stylet is removed beyond the glass tubing, the stylet should be reintroduced until the operator feels he is in the canal. It should then be removed beyond the glass, and the measurement taken. The handle is now turned parallel to the needle and the fluid collected in test tubes. The whole needle, including the glass attachment, stopcock and prolongation, is not any heavier than an ordinary medium-sized spinal puncture needle.

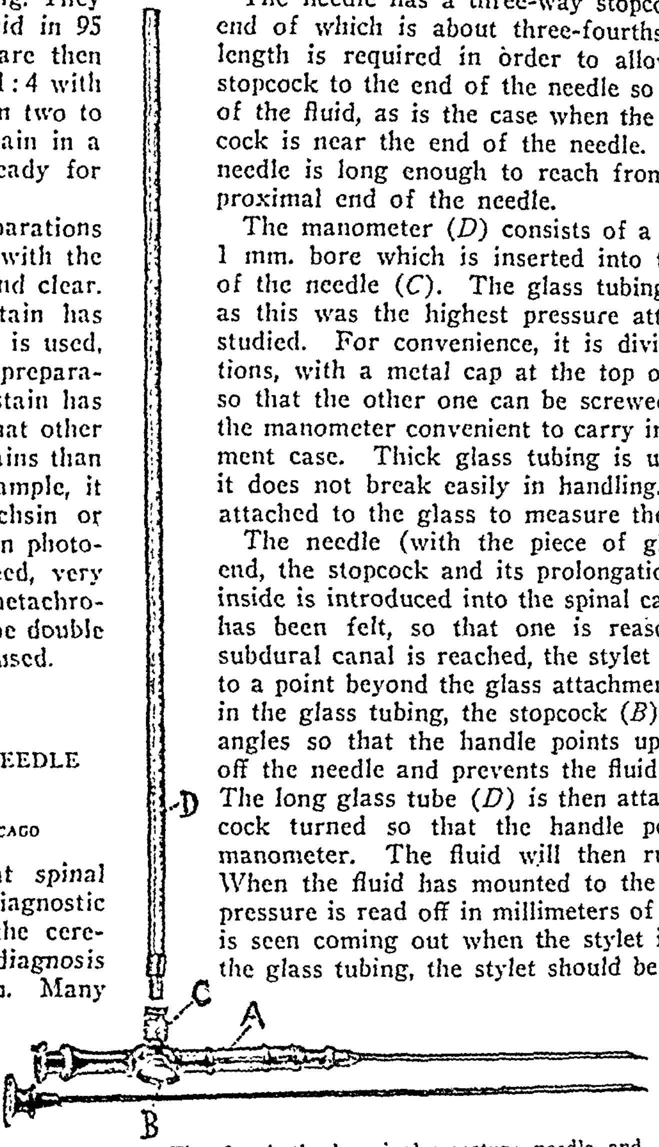


Fig. 2.—Author's spinal puncture needle and manometer: *A*, glass tubing in the needle; *B*, stopcock; *C*, upper projection of the needle into which the manometer is introduced; *D*, glass manometer.

The apparatus is made by Becton, Dickinson & Co., Rutherford, N. J.

30 North Michigan Avenue.

A SIMPLE ALL GLASS ATOMIZER

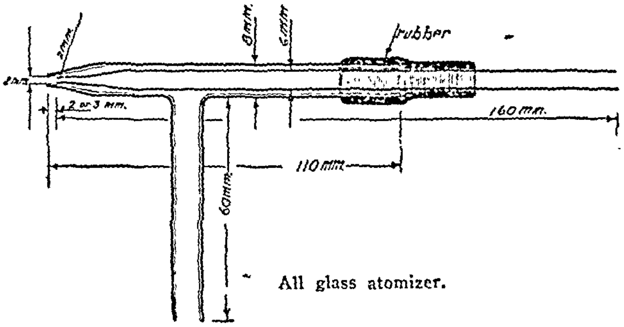
H. S. Newcomer, M.D. (Philadelphia) and W. S. McEllroy, M.D. (Pittsburgh), Philadelphia

Lieutenant and Lieutenant, Junior Grade, respectively, U. S. N. R. F.

The accompanying illustration gives the construction and approximate dimensions of an all glass atomizer which may be readily constructed from ordinary glass tubing and at a cost of only a few cents. It consists of an outer piece which is an 8 mm. glass T tube. One end of the T is drawn out to a nozzle. Another nozzle, slightly smaller, is drawn from a piece of straight 6 mm. glass tubing. The latter nozzle is inserted within the first in such a way that the tip of the inner nozzle is 2 mm. behind the tip of the outer nozzle and concentric with it. The opening of the outer must be a little larger than that of the inner one so that the air stream from the inner nozzle will have an unobstructed path. The inner nozzle should be nearly in contact with the walls of the outer nozzle. Both the nozzles must be in longitudinal section slightly concave outward, and neither should be at all constricted at the tip by flaming.

The two tubes, inner and outer, are fastened together in place with a piece of rubber tubing. Under some circumstances it may be preferable to seal them together in the flame. An ordinary atomizer bulb with its tube slipped over the end of the inner tube furnishes the necessary air current. The absolute dimensions of the atomizer may be varied considerably. One exactly half the size described (about the size of the illustration) works very well.

The free leg of the T is dipped into the liquid to be atomized, or the T may be inverted and a small quantity of the liquid poured into it. The atomizer works in any position, is readily taken apart for cleaning, and can be boiled in a shallow dish. It is especially adapted for use with heavy oils, such as a solution of dichloramin-T in chlorcosane.



All glass atomizer.

Naval Medical School.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.
W. A. Puckner, Secretary.

SULPHOICHTHYOLATE PREPARATIONS

Preparations containing as their essential constituents salts or compounds of a mixture of acids containing sulphur and designated by the group name "sulphoichthyolic acid" are manufactured from certain bituminous shales. Sulphoichthyolic acid is characterized by a high sulphur content, the sulphur existing largely in the form of sulphonates, sulphones and sulphides. The ammonium compound of this so-called sulphoichthyolic acid—first introduced as ichthyol—has been used most extensively. Compounds with sodium and other metals, with albumin, with formaldehyde, etc., have also been introduced.

Actions and Uses.—The current estimate of the effects of sulphoichthyolic acid preparations is based almost entirely on the use of ichthyol. As it is not known to what constituent or constituents of ichthyol such effects as it may have are due, the actions of ichthyol cannot be transferred to similar preparations which differ from ichthyol in their composition. The use of sulphoichthyolate preparations is still largely empirical. They are considered weakly antiseptic and mildly irritant. They penetrate the skin to some extent and are said to cause some vasoconstriction on mucous membranes. Taken internally they produce some gastro-intestinal irritation, with diarrhea, etc. Their influence on metabolism has not been determined.

They are used locally under the supposition that they will secure the absorption of swellings and effusions in contusions, burns, etc., and especially in gynecologic practice, and in various skin diseases. They have been tried internally in a great variety of conditions, but their therapeutic value in many of their suggested applications has not been fully established.

ITTIOLO.—Ammonii Sulphoichthyolicum.—An aqueous solution, the important medicinal constituents of which are ammonium compounds containing sulphur in the form of sulphonates, sulphones and sulphides. These characteristic forms of sulphur result from the sulphonation of the tarlike distillate obtained from the bituminous shales of Giffoni Vallepiana, Italy, and containing the fossil remains of fish.

Actions and Uses.—See general article on sulphoichthyolate preparations above. The composition of ittiolo closely resembling that of the original ichthyol, it is claimed that its actions and uses are also essentially those of ichthyol.

Dosage.—Since this article is claimed to be closely similar to ichthyol its dosage is probably like that of the older preparation (see N. N. R., 1918, p. 160).

Manufactured by Societa' Industrie Chimiche, Giffoni Vallepiana, Italy (Guiseppe W. Guidi, New York, distributor).

Ittiolo is a browhish-black syrupy liquid having a characteristic empyreumatic odor and burning taste.

It is almost completely soluble in water; incompletely soluble in alcohol and ether, but almost completely soluble in a mixture of equal volumes of alcohol and ether; also soluble in a mixture of equal volumes of alcohol, water, and ether. It is miscible with glycerin.

The aqueous solution of ittiolo (1:10) is faintly acid to blue litmus. The aqueous solution (1:10) yields a greenish-black resin-like precipitate upon the addition of hydrochloric acid. This precipitate is nearly insoluble in ether; it is partially soluble in alcohol; soluble in water, but if dissolved in the latter solvent it is again precipitated by the addition of hydrochloric acid. With barium chloride test solution the aqueous solution of ittiolo (1:10) gives a brownish-black precipitate which is insoluble in diluted hydrochloric acid.

Boil an aqueous solution of ittiolo (1:10) with potassium hydroxide test solution. Ammonia is evolved.

Incinerate 1 Gm. of ittiolo. 0.14 per cent. of residue remains.

Dissolve 10 Gm. of ittiolo in 90 Cc. of water, place the solution in a glass stoppered cylinder and allow to remain undisturbed for twenty-four hours. Only a slight deposit is formed.

Ittiolo loses 51.33 per cent. of its weight when dried at 100 C.

Weigh from 5 to 6 Gm. of ittiolo into a flask, add 25 Cc. of potassium hydroxide test solution and 100 Cc. of water. Distill the mixture until no more ammonia passes over, collect the distillate in 15 Cc. of normal sulphuric acid volumetric solution to which one drop of methyl orange test solution has been added, and titrate the excess of acid with tenth-normal potassium hydroxide volumetric solution; the amount of normal sulphuric acid volumetric solution consumed corresponds to 5.16 per cent. of total ammonia (NH_3).

Weigh from 5 to 6 Gm. of ittiolo into a beaker, add 50 Cc. of water, and 10 Cc. of a ten per cent. solution of albumin, followed by 5 portions of 5 Cc. each of diluted hydrochloric acid shaking after each addition. Make up the mixture to a volume of 500 Cc. and filter through a dry filter. Heat 200 Cc. of the filtrate to boiling, add 10 Cc. of barium chloride test solution and allow the mixture to stand for twenty-four hours. Collect the precipitate of barium sulphate, heat and weigh. The weight of barium sulphate obtained corresponds to 6.2 per cent. of ammonium sulphate.

Weigh from 0.5 to 1 Gm. of ittiolo into a Kjeldahl flask, add 30 Cc. of water and 5 Gm. of potassium chlorate followed by 30 Cc. of nitric acid and evaporate the mixture to about 5 Cc.; add 25 Cc. of hydrochloric acid and evaporate to 5 Cc.; again add 25 Cc. of hydrochloric acid and evaporate to 5 Cc. Then add 100 Cc. of water, heat to boiling and add 10 Cc. of barium chloride test solution, allow the mixture to stand for twenty-four hours, collect the precipitate of barium sulphate, heat and weigh. The weight of barium sulphate corresponds to 8.87 per cent. of total sulphur. Calculate the ammonia contained in the ammonium sulphate, as previously determined in ittiolo, and subtract the result from "total ammonia" as previously determined. Multiply the remainder by the factor 1.88. The result represents the sulphur present as "sulphonic sulphur." Calculate the sulphur contained in the ammonium sulphate as previously determined in ittiolo, and subtract the result from "total sulphur" as previously determined. The remainder represents the sulphur present in the organic sulphonic acids contained in the substance. Subtract the "sulphonic sulphur" as previously calculated, from the sulphur in the organic sulphonic acids, as previously calculated. The remainder corresponds to 0.66 per cent. ("sulphide") sulphur.

Ittiolo is incompatible with acids and saline solutions, fixed alkalies, their carbonates and iodides, alkaloidal salts and mercuric chloride.

QUININE ETHYL CARBONATE-MERCK.—Quininæ Æthylcarbonas.—Euquinine.—$C_2H_5O.CO.O.C_{20}H_{23}N_2O$.—The quinine ester of ethyl carbonic acid. First introduced as euquinine.

Actions and Uses.—Those of a nearly tasteless and insoluble quinine compound.

Dosage.—The same as quinine.

Merck & Co., New York, distributors. No. U. S. patent or trademark.

Quinine Ethyl Carbonate-Merck Tablets, 2 grains.—Each tablet contains quinine ethyl carbonate-Merck 2 grains.

It occurs as a light, fleecy conglomeration of delicate white needles, which are practically tasteless.

It is sparingly soluble in water, but readily soluble in alcohol, ether and chloroform.

It is slightly alkaline in reaction, forming well crystallizable, bitter salts with acids.

Quinine ethyl carbonate melts at 89 to 91 C.

Dissolve about 0.2 Gm. of quinine ethyl carbonate in 5 Cc. of dilute sulphuric acid and dilute to 50 Cc. The solution exhibits a strong blue fluorescence, and responds to the general tests for alkaloids. Add 2 or 3 drops of bromine test solution to a 1 Cc. portion of the solution followed by 1 Cc. of ammonia water; the liquid acquires an emerald green color due to the formation of thalleoquin.

Dissolve 0.2 Gm. of quinine ethyl carbonate in 5 Cc. of nitric acid and dilute to 25 Cc. To a 5 Cc. portion add 1 Cc. silver nitrate test solution. No precipitate is formed (*chloride*). To another 5 Cc. portion add 1 Cc. barium chloride test solution. No precipitate is formed (*sulphate*).

Add 5 Cc. of iodine test solution to about 0.2 Gm. of quinine ethyl carbonate, decolorize with sodium hydroxide test solution and warm. The odor of iodoform is manifested (*ethyl group*).

Incinerate about 0.5 Gm., accurately weighed. Not more than 0.1 per cent. of residue remains.

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SATURDAY, FEBRUARY 1, 1919

THE "HEALTH RATE" OF A NATION

Among the many lessons that the war has helped to teach, few have been more significant than the demonstration of the unexpectedly large number of persons who, from a military standpoint, are physically unfit. The more progressive nations have for some years devoted much consideration to the problems of national vitality, and sanitary science as well as practical hygiene has gained a more prominent place in the estimation and the budgets of enlightened communities. Perhaps, however, Arthur Keith was right in saying that the mistake which we have been making is that of keeping our eye too exclusively on the birth rate and death rate and neglecting what he cleverly designates the "health rate."[1] Without doubt the young men of the English-speaking nations, at least, have been shown by the elaborate physical examinations, undertaken as a part of the military arrangements of the respective countries, to be far below that ideal standard of fitness which might be expected for a virile race.

The almost appalling statistics of the examinations made in this country by the medical boards have been referred to from time to time. Keith[2] has presented the conditions that prevail in England in statistical terms which indicate the outcome of grading young men from one of the large British industrial towns. In place of having 900 men, out of 1,000, more or less fit for physical employment in civil life, only 460 could thus be counted. It may be objected that the present population of such towns and cities represents for the most part only the residue after the fit and active men have gone out to military service; but Keith ventures to assert confidently[1] that even when this possibility is taken into account there can still be no illusions as to the large numbers who are physically far below the standards for their ages.

Well defended assertions of this sort, which can doubtless be duplicated from American experiences, at once raise the question as to the most probable causes and the appropriate remedies for an admittedly undesirable condition. Broadly speaking, it resolves itself into the much debated question as to the comparative influence of environment and heredity in the development of the individual. One "expert" will tell us that the growing numbers of the physically unfit are attributable to the results of slum life, or to the necessity of wage earning by mothers who are consequently unable to look after their children. The obvious inference is that the living conditions of a large group of our population must in some way be improved. Another group of investigators will remind us, on the other hand, that there is a danger of promoting racial harm if assistance is freely granted to families without regard to their personal or moral worth, that is, their hereditary stamina, for expenditure tending to improve hygienic conditions may incidentally promote fertility. What would be more irrational than to breed unfitness in the attempt to eliminate it?

The dilemma is of more than academic interest. National health is demanding more prominent consideration than has been accorded to it either here or abroad in the past. In the United States the desirability of having the Public Health Service recognized more prominently as an independent department of the government has been widely discussed. In England the project of a ministry of health seems likely to succeed. The prime minister, Mr. Lloyd George, has awakened the imagination of the English by the terse remark that it is impossible to maintain an A 1 empire with a C 3 population. He took pains to emphasize, by way of explanation, that greater attention ought to be paid to the home, "the most important workshop in the land," because it turns out human beings, the most delicately constructed of all human machines.

Leonard Darwin, son of the eminent biologist Charles Darwin, has pointed a warning against possible misinterpretations of the widely quoted A 1-C 3 catch phrase.[3] He reminds us that if the steel of which a tool is made is not of good quality, a good article cannot be turned out even in the best workshop; that is, the child must be both endowed at birth with good racial qualities and born in a good home if the result, the finished man, is to be of the best quality. From this standpoint the progressive reformer who aims at increased national efficiency must be conversant not only with modern sanitation and the proposed devices for social uplift, but also with the investigations of the experimental biologist. Both eugenics and "euthenics," as the scheme for environmental betterment has been termed, must find a place in the new attempts to improve the "health rate" of the nation.

Even the most enthusiastic propagandists for eugenic matings among mankind realize how visionary their schemes are amid a society of present-day make-up. No one will object if postwar efforts to secure increased national vitality are directed toward promoting biologically sane marriages. It seems well worth while, however, to point out, as Leonard Darwin has also done, that we must not count the C 3 man whose disabilities are due to wounds of war or accidents of peace as unfit for parenthood. The belief in the inheritance of acquired defects has long been abandoned. A wounded combatant, one of the thousands now returning to their homes, is just as likely to "be the father of heroes" as any uninjured civilian. A man's physical injuries in no way compromise the racial qualities of his descendants.

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[1] Keith, Arthur: National Physique and Public Health, the Observer, Oct. 20, 1918.

[2] London Letter, J. A. M. A. **71**: 1929 (Dec. 7) 1918.

[3] Darwin, L.: A 1 and C 3, the Times, London, *Jan. 1, 1919.*

Lastly, let us not make the blunder of measuring fitness solely from the standpoint of physical prowess. Moral and intellectual virtues have often been found in relatively frail bodies. We need men and women who have a clear intellect and a tender conscience—the higher type of individual whose body is the ready servant of a superior will.

THE FAILURE OF GERMAN COMPULSORY HEALTH INSURANCE

Prior to the entering of the United States into the world war, social insurance was under general discussion in medical, public health, social reform and philanthropic circles. Eight states appointed commissions to investigate the subject and submit reports and recommendations. With the return of peace it is highly probable that this discussion will be resumed. While the American Medical Association has taken no definite stand on the fundamental questions involved, it has, by the adoption of the resolutions[1] presented to the House of Delegates in New York in 1917, indicated a minimum basis on which the medical profession will cooperate in case the plan is adopted by any state. To the majority of physicians the question is an open one on which they are keenly desirous of securing all the information possible. Much has been written in favor of social insurance from an economic and public health standpoint; many claims have been made regarding results in other countries; but little has been written in the form of definite criticism of the proposed plan and its results elsewhere. For this reason, the paper presented before the twelfth annual meeting of the Association of Life Insurance Presidents by Mr. Frederick L. Hoffman will doubtless arouse considerable discussion.

The primary purpose of the establishment of compulsory social insurance in Germany, according to Mr. Hoffman, was to hinder the rise, curtail the power, and ultimately destroy the socialistic movement in Germany. "By means of a cleverly devised terminology and downright methods of deliberate deception, the German working people were deluded into the belief" that compulsory health insurance was primarily intended for their benefit. In this way the German government hoped to bring about the complete subjection of German wage earners to the will of the bureaucratic and political machine. "All compulsory social insurance," says Mr. Hoffman, "rests on profound misconceptions of life and labor in a democracy, for it involves the establishment of permanent class distinctions." After thirty years' trial in Germany, compulsory health insurance, he asserts, has not improved the health of the working portion of the community or the standard of public health, while financially it is at present in a condition of chaos. It has increased malingering among employees to such an extent that only 26.6 per cent. of the alleged illness in Leipzig was found to be real. As to the claim of improvement in the health of employees, in 1884-1885, in Dresden when the fund was established, the percentage of employees claiming sick benefit was 30.4, while in 1913, after twenty-nine years of operation, the percentage was 32.2; in other words, the amount of illness among the insured after thirty years of insurance was greater than it was in the beginning. There were 27.7 per cent. of deaths from tuberculosis among male wage earners, as compared with 21 per cent. for the same class in the United States registration area. Regarding financial conditions, the report of the sick fund for Königsberg for 1917 shows that expenditures have increased 75 per cent. as compared with 1915, and that the assessment on wages has been raised from 4.5 per cent. to 6 per cent. to meet this increased expense. Dishonesty and deception on the part of patients, druggists and physicians, with a general undermining of the morale of the community, are also charged. Some of Mr. Hoffman's conclusions bear on the social results of compulsory insurance. It has not checked the spread of socialism in Germany, he asserts, but has increased the demand of workmen for additional benefits; it has not improved the economic condition of the German wage earner, since the benefits that it provides were never adequate to meet more than the requirements of the minimum standard of living. It has not reduced disease nor improved public health conditions. In the field of sanitary reform the United States, in the last thirty years, he declares, has advanced far more rapidly without social insurance than Germany has with it. The death rate in Germany has not diminished proportionately, as it has in this country. The condition of the medical profession in Germany has not been improved, but, on the contrary, the ethical standards of the profession have been perceptibly lowered. The sickness rate among German wage earners has not been reduced; increased demands on the funds both now and in the future will require either increased contributions from wage earners, withdrawals from the financial reserves, or both. The system has resulted in a lowering of social and individual morality and has fostered deception, dissatisfaction and dissimulation. The German experience, in

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[1] J. A. M. A. 68:1755 (June 9) 1917.

Mr. Hoffman's opinion, proves the inadequacy of social insurance as an effective means of securing the required degree of continuous social progress demanded by modern standards of labor and life.

Mr. Hoffman's conclusions will doubtless be challenged by the advocates of social insurance. The charges he makes against German-administered social insurance are serious. If sustained by the evidence, they are entitled to serious consideration. In determining his attitude on the question, every physician must avail himself of all the information he can secure on both sides of the question and weigh the evidence for and against. Mr. Hoffman's paper is a specific attack on the proposed social insurance plan, and as such should be considered by the student of the subject.

THE PROBLEM OF WOOD ALCOHOL POISONING

The dangers of intoxication with methyl alcohol (wood alcohol) are beginning to be recognized more widely than was the case a few years ago when all "alcohol" was popularly assumed to be essentially similar to grain spirits in its behavior in the organism. The occasional instances of harm that attended the use of wood alcohol in the industries were scarcely sufficient to give a due warning of the danger from this substance. However, when wood alcohol began to be drunk with fatal results by the "toper" who could not obtain his accustomed alcoholic beverages, and when large numbers of serious poisonings from the use of whisky adulterated with wood alcohol came to public notice, the real menace of methylated spirits to health began to be appreciated. Both acute and chronic poisoning with methyl alcohol give rise to serious damage to the optic nerves as the most conspicuous and distressing symptom.

The foremost reason for the unlike physiologic behavior of the two commonest alcohols lies in the unlike readiness with which they are oxidized in the body. Ethyl alcohol may be excreted to a small degree through the eliminatory organs; but for the most part it is burned up much as are the ordinary foodstuffs. Hence the contention that alcohol may be a food. Methyl alcohol, on the other hand, is oxidized with difficulty. More than half of a nontoxic dose may find its way out of the body again through the respiratory channels. Furthermore, the progress of the elimination of the unoxidized portions is comparatively slow, so that the output from a single dose may even continue during an entire week. As a consequence of these features—deficient oxidation and slow elimination—the poison delays in the organism unduly long to continue its detrimental effects.

The fact that a portion of the nervous system—the optic nerve—is especially affected by methyl alcohol naturally suggests that this substance has a preferential affinity for the nervous tissue. Recent researches of Pohl[1] at the Pharmacologic Institute of the University of Breslau indicate that this suspicion is not verified. It almost seems, says Pohl, as if no organ retains so little methyl alcohol as does the brain. We must therefore assume that the nervous system is peculiarly sensitive to the toxic agent rather than that it is unduly overwhelmed by larger quantities concentrating in this tissue.

The prospect of effective treatment in the case of an agent exhibiting this peculiar behavior is not particularly promising. Pohl found in the case of animals poisoned with wood alcohol that a combination of bloodletting and injection of Ringer's solution seemed to decrease the concentration of the poison in vitally affected tissues. A similar result followed the introduction of charcoal subcutaneously into the body, this substance apparently serving to remove part of the unexcreted alcohol by specifically adsorbing it. Such procedures, interesting as they are in pointing the way to the possibilities of treatment, are far from practicable in the exigencies of human cases.

DENERVATED MUSCLE ATROPHY

When a motor nerve is severed, the muscle which it supplies enters into a state of inaction, so far as its usual contractile function is concerned, and muscular atrophy gradually ensues. Ultimately the nerve may regenerate so that a functional connection with its muscles again becomes restored. Obviously it would be of enormous physiologic advantage if the intervening muscular atrophy could be wholly or in part averted. Attempts at a successful therapy to prevent the disaster that follows the nerve injury and may be termed denervated muscle atrophy have not been wanting. The earliest efforts were based on the disuse theory—the belief that the wasting of the denervated muscle is due to the lack of exercise. Three quarters of a century ago in an experimental study of the problem, John Reid undertook to supply the supposedly needed activity by inducing contraction in denervated muscle by means of electrical stimulation; likewise the versatile Brown-Séquard attempted to avert the impending atrophy by the use of the galvanic current, which he assumed might not only keep up the muscle weight by the contractions induced, but also have some direct influence on the chemical changes similar to that produced by the nervous agent in the muscle. Evidently the vague "tropic" influence of the nerves on muscles was in the mind of the investigator. A recent review[2] of the situation in Brown-Séquard's time says:

> In man, the production of contraction in paralyzed muscles was not found to prevent atrophy, but it was generally thought to delay it. The theory was contested by many on the ground

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[1] Pohl, J.: Versuche zur Entgiftung des Methylalkohols, Arch. f. exper. Path. u. Pharmakol. **83**: 204, 1918.

[2] Langley, J. N., and Hashimoto, M.: Observations on the Atrophy of Denervated Muscle, J. Physiol. **52**: 42, 1918.

that the rate of loss of weight and the changes in the muscle after nerve section were of a different order from those occurring in disuse of the muscles arising from cerebral paralysis and from certain lesions of the spinal cord. On the other hand, it was argued that in these cases reflex and tonic contraction were not abolished, and the disuse only partial. Thus whilst, in general, disuse was held to account for a part only of the atrophy, the inactivity theory still had supporters.

Another theory subsequently unfolded led to the practice of massage and passive movement in cases of nerve severance in man. It was based on the observation that there is very little lymph flow in a normal quiescent muscle, and that the flow of the lymph is increased by movement. Here, then, seemed to lie a possibility for promoting the nutritive exchanges in an active muscle. In contrast to all of these views, Langley[3] of Cambridge, England, has suggested that the atrophy is due to the continuous fibrillation that occurs in a denervated muscle. Since certain salts, like those of calcium, are known to stop fibrillation, Langley and his co-workers have attempted to apply the fact to the treatment of denervated muscle. Feeding the salts having proved impracticable or of no avail, ionization schemes by means of electric currents have been attempted. The practical difficulties of this plan are almost insuperable, since the currents required to stop the fibrillation in the deeper parts of the muscles are stronger than the skin will bear without undergoing abnormal changes.

After a trial, in an elaborate experimental way, of the various forms of treatment proposed, Langley and Hashimoto[2] have gained the general impression that none of the methods of treatment of denervated muscle now in use—passage of galvanic current, production of contraction, passive movements and massage—can have more than a slight effect in delaying muscle atrophy. The only direction of promise at present consists in continuing the time-consuming experiments on animals, in the hope of discovering new leads. As the Cambridge physiologists remark, the conditions in man allow of very little exact observation. The time of recovery, from six to ten months, varies so greatly with the unascertainable conditions at the point of suture that any influence there may be of other treatment is completely dwarfed. Connective tissue growth may easily be caused, and on that account measurement of the limbs at intervals of stimulation is a very insecure basis for estimating growth of muscle; moreover, if there were a growth of the muscle it would mean that the atrophy could be prevented altogether, and no one now, so far as we know, claims that this can be done.

The only remaining method in man is to compare the electrical irritability after the muscle has been left alone with that after it has been treated, a method by no means valueless, but one in which the experimental error is very large.

Current Comment

THE EFFECT OF INDUSTRIAL EMPLOYMENT ON MATERNITY

In the *Monthly Labor Review* for November, 1918, published by the Bureau of Labor Statistics of the United States Department of Labor, appears an abstract on the Effect of Industrial Employment of Women on Maternity. It is based on a report published by the Women's Industrial Council of London, in a recent issue of the *Women's Industrial News*. The problem undertaken was to discover, if possible, whether industrial employment affected a woman's capacity for successful maternity, and whether, if it did, it was due to industrial work per se, or to some particular kind of work. In order to secure authoritative information the investigation was confined to mothers under the care of some recognized authority, as schools for mothers, infant welfare centers, and maternity wards of hospitals. The first plans, including full particulars as to hygienic, occupational, domestic and personal conditions before marriage and before and during pregnancy, proved too ambitious, as practically none of the institutions kept sufficiently full records of the items involved to be able to contribute any valuable information. Only 934 cases were included in the study, so that the data available are not sufficient on which to base any definite conclusions. Some interesting observations, however, were made. As in many other health problems, the fact that most strongly impressed itself on the investigators was that practically no real data on the subject exist, and that the first step in any effort to solve the problem of the effect of employment on maternity is to acquire accurate knowledge of the influence of employment on the health of mothers and infants. Observation and the recording of facts must necessarily antedate marriage and pregnancy by a considerable period in order to form any sound basis of comparison. The inquiry into the effects of different kinds of employment also was unsatisfactory. A questionnaire sent to physicians, matrons and nurses at maternity hospitals, midwives, and visitors and superintendents of infant welfare centers produced the usual indefinite replies, based partly on fact and partly on prejudice or general impression. Such data as could be recorded and tabulated were also vague. Dividing the mothers according to whether they had or had not been industrially employed during pregnancy, it was found that the proportion of living children, children who had died, and stillbirths was almost the same for the two groups. Regarding the character of occupation, it was found that out of 331 mothers industrially employed during pregnancy, 213 employed in active occupations furnished eighty-three "bad" cases of labor, or 39 per cent.; eighty-eight women employed in sitting occupations furnished twenty-three "bad" cases, or 26 per cent., while thirty women employed in standing occupations furnished only two "bad" cases, or 6 per cent. "Bad" cases were defined as those in which (*a*) 25 per cent. or over of the children died; (*b*) the mother had a difficult or complicated confinement, or

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[3] Langley, J. N.: J. Physiol. 50: 337, 1916.

(*c*) the infants born were not healthy. These figures, while interesting, are, as the investigators recognize, too few on which to base any definite conclusions. An interesting comment is made on the relative effect of industrial occupation versus domestic activity; attention is called to the fact that writers on infant mortality and the birth rate lay great emphasis on the evil of manual labor in factories, but say little if anything of the results of the incessant drudgery of domestic labor: "People forget that the unpaid labor of the working woman at the stove, at scrubbing and cleaning, at the washtub, at lifting and carrying heavy weights, is just as severe manual labor as many industrial operations in factories." The only definite conclusions by the investigators are that they are able to find no difference between domestic work and industrial work, nor any reason for prohibiting any woman from undertaking any kind of healthy employment of which she feels capable.

TETANY AND ALKALOSIS

To Wilson and his co-workers[1] at the Johns Hopkins Medical School belongs the credit of having directed attention to the possible physiologic and pathologic significance of alkalosis, a condition in which the equilibrium between acids and bases in the blood is displaced in favor of the bases. Alkalosis accordingly is the antithesis, so to speak, of the more familiar condition of acidosis. This abnormal preponderance of bases was described as the sequence of removal of the parathyroid organs, and makes its appearance with the onset of tetany. The latter can be relieved by the administration of acids with consequent restoration of the usual acid-base equilibrium in the organism. Furthermore, it is easy to believe that the tetany itself, leading to the production of acids through the muscular performances, will serve to relieve the condition of alkalosis and thus act as a corrective to the circumstances that initiate the tetanic outburst. At the Harvard Medical School, McCann[2] has verified the fundamental facts just referred to. His experiments in parathyroidectomy also show an increase in the ability of the plasma to combine carbon dioxid coincidently with the development of tetany. This may be interpreted as being due to an increase of the basic over the fixed acid radicals in the blood, as compared with that of normal animals. McCann has ventured further to consider the possibility of alkalosis in relation to gastric tetany. Experimentally he observed that, following operations on the stomach which exclude the acid secreted from the duodenum, tetany develops accompanied by an increase in the carbon dioxid combining power of the plasma similar to that of parathyroid tetany. Administration of acid intravenously or through the duodenum produced favorable responses toward more normal conditions. Various possibilities have been expressed in explanation of the mechanism by which the acid-base equilibrium may become displaced at times. Both the kidneys and the pulmonary ventilation may be concerned. McCann, however, has gone farther to interpret gastric tetany as a condition of alkalosis, in which a disproportion between the rates of secretion of acids and alkalis by the gastro-intestinal tract may be a factor. Clinically gastric tetany is most apt to occur, as McCann reminds us, in those cases in which there is some pyloric obstruction. The secretion of hydrochloric acid by the stomach, provided the acid does not pass into the duodenum to excite the alkaline intestinal secretions, might be expected to leave the blood with an excess of basic substances.

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[1] Wilson, D. W.; Stearns, T., and Janney, J. H., Jr.: J. Biol. Chem. **21**: 169, 1915. Wilson, D. W.; Stearns, T., and Thurlow, M. D.: J. Biol. Chem. **23**: 89, 1915.

[2] McCann, W. S.: A Study of the Carbon Dioxid Combining Power of the Blood Plasma in Experimental Tetany, J. Biol. Chem. **35**: 553, 1918.

THE MILK SUPPLY IN ENGLAND AND IN AMERICA

If milk is really vital to national health and efficiency, it can well be understood why the United States Food Administration warns the American people to do everything to prevent in this country the tragic results that are following the cutting down of milk consumption abroad. To quote the words of the Food Guide,[1] it is *most unfortunate that ignorance of the value of milk makes people particularly sensitive to a change in its price. When it goes up even a cent a quart, many cut down their consumption, while a considerably larger advance in the price of meat will make little difference in the amount bought. That there is an actual decline in the use of milk in some of the large cities seems to be attested by statistics.*[2] Dr. Dorothy Reed Mendelhall[3] of the Children's Bureau, U. S. Department of Labor, has pointed out that in the United States the price of bread is controlled, while that of milk is not. Price fixing has its unforeseen difficulties that concern the indispensable producer on the one hand and the dependent consumer on the other. Mr. Hoover has asserted that obviously our people must have whatever food is necessary and must have it at prices that they can meet from their wage. If we are to have ascending prices, we must have ascending wages. But as the wage level rises with inequality, it is the door leading to strikes, disorder, riots, and defeat of our national efficiency. We are thus between two fires—to control prices or to readjust the income of the whole community. The verdict of the whole of the world's experience is in favor of price control as the lesser evil. We shall not venture any opinion as to what can be done in the area of commerce between the producer and the retailer. In England a milk order empowered the local authorities to arrange for the supply of food and milk to the "priority" class of mothers and children; and according to Dr. Mendenhall they were permitted to obtain it at a low price, the deficit incurred being charged to grants for maternity and child welfare. In this country we have obtained bread at low prices without the subsidy that was found necessary in England. Perhaps milk also can be kept within purchasable range for all by some sort of voluntary agreement, such as Mr. Hoover has so judiciously brought about in other instances. But whatever may be the device needed, let us not only conserve our dairy herds and enhance the milk supply, but also make certain that it becomes available to the children of America.

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[1] Food Guide for War Service at Home, prepared under the direction of the United States Food Administration, New York, Charles Scribner's Sons, 1918.

[2] Milk Prices and the Poor Wage-Earner, Weekly Bull., Dept. of Health, City of New York, Nov. 3, 1917; Studies of the Use of Milk by Families Having Little Children, Children's Bureau, U. S. Dept. Labor.

[3] Mendenhall, Dorothy R.: A Memorandum on Milk, Am. J. M. Sc. **156**: 586, 1918.

CAUSE OF DENTAL CARIES

Although considerable difference of opinion exists with regard to the influence exerted by oral sepsis on the general health, there is no disagreement as to the harmfulness of dental caries. There may be skepticism regarding the statements of well known medical practitioners that oral sepsis is the *fons et origo* of the majority of systemic diseases, but there can be no denial of the fact that dental caries is a serious condition, tending to ill health. The inability to masticate food properly when dental caries is present is sufficient in itself to demonstrate this. When a person cannot chew food thoroughly, digestive disturbances may occur not infrequently. It is generally supposed that people leading a primitive life suffer little with their teeth. This is true to a large extent. However, even natives of Africa living in a cleanly, natural manner are by no means immune to dental caries. Dr. Stannus[1] examined the entire population of a series of villages in the West Nyasa District of Nyasaland. Their diet was chiefly cassava made into porridge and some eaten raw, other constituents being ground nuts, fish, a little maize or millet, flour porridge, green vegetables and bananas. Of 1,311 persons examined, 1,038 of whom were adults, 8.6 per cent. showed caries. Stannus concluded that native Africans have no immunity to dental caries, and that the same causes and predisposing conditions are the source of caries among them as among people of civilized countries. The small comparative incidence of caries among natives living under natural conditions is due to the absence in large proportion of those predisposing conditions found in civilized races, irregular dentition, lack of proper mastication, and want of the use of the teeth, owing to the eating of soft foods. It has been urged by many that one of the main causes of dental caries is the eating of food that requires little mastication, and that consequently dental caries has increased greatly because in civilized countries so much soft food is consumed. Dr. Harry Campbell of London may be termed the high prophet of this propaganda, and he preaches in and out of season of the injury to the teeth and to the health done by eating "pappy" food. The teeth were intended to be freely used in the mastication of hard food. When they are not so used they tend to decay, and the general health suffers.

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[1] Stannus: Brit. Dent. J. 35: 729-741 (Sept. 15) 1917.

Hygiene and the State.—The health laws of the state to be effective must be supported by a people trained to understand and trained to obey these laws. The hygiene of the state as a whole cannot be better than the hygiene of the people who make the state. An effective physical training of the individual is then a contribution in the service of the state.—T. A. Storey, M.D., Ph.D., on Physical Training.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending January 24 there were in the Medical Corps of the Army 24,348 officers, a decrease since the previous week of 523. By rank there were two major-generals, six brigadier-generals, 223 colonels, 481 lieutenant-colonels, 2,331 majors, 8,473 captains and 12,832 first lieutenants. In the Medical Reserve Corps there are now 626 officers. Discharges since the beginning of the war include 9,263 officers.

Weekly Bulletin A. E. F.

Weekly Bulletin No. 39 of the American Expeditionary Forces, dated Jan. 6, 1919, gives a summary of certain communicable diseases in the A. E. F. during 1918. There were 30 cases of anthrax, almost all traced directly to shaving brushes. There were 185 cases of chickenpox; 3,456 cases of diphtheria; 863 cases of amebic and bacillary dysentery of proved type; 5,953 cases of measles, with a monthly rate per 100,000 varying from 14.4 in February, 1918, to 358 in January, 1919. There were 1,469 cases of meningococcus meningitis and 1,460 cases of scarlet fever. There were nine cases of smallpox and 579 cases of typhoid fever and paratyphoid fever. The monthly rate for typhoid and paratyphoid varied from 0.0 cases in February, 1918, to 11.1 cases in July, 1918. Most of the cases occurred in two small epidemics and in scattered cases following the Argonne offensive. The weekly review states that typhoid is still increasing, and that more new cases of typhoid than of any other of the communicable diseases have been reported during the past week. Diphtheria, measles, meningitis and scarlet fever show a reduction since the previous week.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L., signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Adamsville—Miller, J. A. (L.)
Alexander City — Street, T. H. (C.)
Bayon La Batre—Cogburn, H. R. (C.)
Birmingham—Cameron, A. C. (C.)
Garrison, J. E. (C.)
Green, A. C. (L.)
Moore, C. H. (L.)
Camden—Jones, J. H. (C.)
Jones, T. W. (C.)
Dalesville—Windham, L. A. (L.)
Dothan—Ellis, J. T. (L.)
Ensley—Gaston, A. L. (L.)
Enterprise—Gibson, E. L. (L.)
Mobile—Dodson, J. H. (L.)
Haas, T. D. (L.)
Jones, R. C. (C.)
Winthrop, G. J. (C.)
Oakman—Woodson, J. L. (C.)
Patton—Chilton, D. H. (L.)
Selma—Jones, L. (C.)
Whistler—Gay, N. S. (L.)

ARIZONA

Jerome—Kaull, L. P. (C.)
Morence—Rice, H. W. (L.)
Phoenix—Monical, G. S. (C.)
Willcox—Wilson, J. C. (L.)

ARKANSAS

Casa—Brooke, H. C. (L.)
Eldorado—Purifoy, L. L. (C.)
Fordyce—Harrison, F. E. (C.)
Fort Smith—Riddler, P. A. (L.)
Hope—Weaver, R. E. (L.)
Huntsville—Roberts, D. C. (L.)
Lockesburg—Graves, J. C. (L.)
Magnolia—McLeod, G. F. (L.)
Mena—Holt, E. E. (C.)
Monticello—Pope, M. Y. (C.)
Newport—Jones, O. E. (C.)
Round Pond—Powell, C. V. (L.)
Thornton—Rhine, T. E. (L.)
Turrell—Webb, F. (L.)
Waldo—Andrews, S. C. (L.)
Walnut Ridge—Land, J. C. (L.)
Winslow—Gray, T. E. (L.)

CALIFORNIA

Alhambra—Hull, J. F. (C.)
Burbank—Thompson, E. H. (C.)
Calistoga—Lewis, C. E. (C.)
Downey—Haygood, A. G. (C.)
Folsom City—Wahrhaftig, M. J. (L.)
Fort Jones—Milliken, A. A. (L.)
Holtville—Wimp, W. H. (L.)
Ingelwood—Anderson, L. N. (C.)
Los Altos—Coleman, E. H. (C.)
Los Angeles—Baker, C. D. (C.)
Bishop, F. C. (L.)
Dale, H. M. (C.)
Dunton, W. A. (C.)
Early, C. E. (L.)
Edgerton, H. W. (C.)
Frank, M. S. (L.)
Garland, J. A. (C.)
Gilbert, W. H. (C.)
Holman, W. F. (C.)
Huntoon, H. A. (C.)
Laubersheimer, G. A. (C.)
MacLaughlin, W. E. (C.)
Mitchell, H. B. (L.)
Monteleone, J. (L.)
Moore, A. W. (C.)
Pallette, E. M. (C.)
Pinkerton, B. G. (C.)
Shea, J. R. (L.)
West, F. B. (L.)
Wilson, L. E. (L.)
Wissig, S. L. (C.)
Zerfing, C. E. (C.)
Madera—Ransom, D. H. (L.)
Modesto—Falk, E. V. (L.)
Oakland—Dewitt, J. W. (L.)
Fearn, J. R. (C.)
Liliencrantz, G. H. (C.)
Makinson, H. A. (C.)
Ontario—Titus, J. H. (C.)
Oroville—Newbold, E. H. (L.)
Palo Alto—Power, H. (M.)
Quincy—Lasswell, B. J. (L.)
Sacramento — Cameron, H. M. (M.)
Parkinson, J. H. (C.)
San Bernardino—Savage, P. M. (C.)
San Diego—Riggs, L. D. (L.)
San Francisco—Bergener, G. J. (C.)
Brendel, F. P. (C.)
Cross, C. (M.)
Dougherty, J. A. (L.)
Fractman, M. B. (L.)
Francoz, M. A. (L.)
Friedman, A. (L.)
Kroll, F. W. (C.)
Moore, W. L. (C.)

San Francisco—Mugler, F. R. (L.)
Nelson, J. A. (C.)
Painton, H. R. (C.)
Poheim, J. F. (C.)
Sherman, H. M. (M.)
Zunwalt, E. R. (L.)
San Jose—Dickinson, A. E. (L.)
Gerlack, F. C. (C.)
Santa Clara—Rose, L. M. (L.)
Santa Paula—Merrill, B. E. (C.)
Sonora—Pleth, V. (C.)
South Pasadena—Root, R. R. (C.)
St. Helena—O'Connor, J. H. (C.)
Taft—Jones, E. A. (C.)
Venice—Atkins, S. M. (L.)
Whittier—Rosenberger, H. G. (L.)

CANAL ZONE

Ancon—James, W. M. (M.)
Kupfer, N. B. (L.)

COLORADO

Colorado Springs—Hartwell, J. B. (C.)
Morrison, C. S. (C.)
Denver—Enos, C. (L.)
Jones, S. F. (M.)
Markley, A. J. (M.)
Fort Collins—Kickland, W. A. (C.)
Norton, D. O. (C.)
Grand Junction—Taylor, A. G. (C.)
Johnstown—Grantham, O. A. (L.)
La Junta—Mendelson, R. W. (C.)
Pueblo—Lucas, W. (C.)
Stoddard, T. A. (C.)
Salida—Bender, A. J. (L.)
Fuller, C. R. (L.)
Silverton—Condit, E. G. (L.)

CONNECTICUT

Bridgeport—Day, F. L. (L.)
Havey, L. A. (L.)
Pasuth, B. C. (L.)
Derby—Roberts, H. A. (L.)
New Haven—Blake, E. M. (C.)
Dryfus, M. L. (L.)
Grodzinsky, H. W. (L.)
Plainville—Frost, L. H. (L.)
Rockville—Dickinson, F. M. (C.)
Stanford—Hewitt, A. F. (L.)
Waterbury—Fruin, J. W. (L.)
Gosselin, G. A. (L.)
Root, J. H. (L.)

DELAWARE

Harrington—Bringhurst, J. (C.)
Milford—Lofland, J. P. (C.)
Wilmington—Rutherford, J. B. (C.)

DISTRICT OF COLUMBIA

Washington—Baier, G. K. (L.)
Martel, L. A. (C.)

FLORIDA

Arcadia—King, F. R. (C.)
Homestead—Lanier, W. T. (L.)
Jacksonville—Acker, A. E. (C.)
Ward, J. F. (L.)
Wilkinson, A. H. (L.)
Sorrento—Callahan, O. L. (M.)
St. Petersburg—Randall, G. M. (C.)
Raymond, H. L. (C.)
Tampa—Larner, L. G. (L.)
Wauchula—Cline, H. E. (L.)
West Palm Beach—Peek, L. A. (C.)

GEORGIA

Americus—Grubbs, L. F. (C.)
Arlington—Sharp, C. K. (C.)
Atlanta—Craig, N. (C.)
Flowers, A. P. (C.)
Floyd, J. T. (C.)
Keeling, L. J. (C.)
Manget, J. D. (C.)
McAliley, R. G. (C.)
Augusta—Freeman, W. T. (L.)
Malone, H. H. (C.)
Berlin—Edmonson, H. T. (L.)
Bogart—Middlebrook, C. O. (L.)
Canton—Coker, N. J. (C.)
Cassville—Cross, W. F. (C.)
Chattahoochee—Green, J. E. G. (L.)
Cohtown—Bowen, H. (L.)
Columbus—Baker, E. L. (L.)
Brooks, R. L. (L.)
Daisy—Elarbee, G. W. (L.)
Danielsville—Payne, D. (L.)
Dawson—Kenyon, O. T. (C.)
Eatonton—Griffith, E. F. (L.)
Ensley—Smith, G. H. (L.)
Gordon—Brokins, C. B. (L.)
Hoboken—Dorminy, A. C. (L.)
Jersey—Gerdine, J. (L.)
Martin—Crawford, J. H. (C.)
Oakhurst—Phillips, W. P. (L.)
Rex—Longino, D. R. (L.)
Rome—Chandler, J. L. (L.)
Springfield—Griffin, E. W. (L.)
Tifton—Todd, R. W. (L.)
Tunnel Hill—Carr, J. H. (L.)
Woodbury—Allen, W. P. (L.)

IDAHO

Boise—Shurtz, R. E. (C.)
Burley—Fremstad, J. (C.)
Patterson, J. C. (L.)
Elk River—Dimon, J. (L.)
Grangeville—Slusser, C. W. (C.)
Hausen—Paxton, C. C. (L.)
Kimberly—Davis, J. N. (L.)
Menan—Melton, J. E. (C.)
Pocatello—Ray, F. M. (L.)
Rexburg—Parkinson, G. T. (L.)
Weiser—Dudley, S. B. (C.)

ILLINOIS

Aledo—Kleinsmid, J. A. (C.)
Auburn—Hart, S. P. (C.)
White, J. V. (C.)
Baylis—Bowman, W. F. (L.)
Beardstown—Garm, R. H. (M.)
Bloomington—Greenleaf, P. E. (L.)
Blue Island—Davies, C. G. (C.)
Bradford—Mitchell, W. C. (C.)
Brussels—Baecht, F. C. (L.)
Cameron—Zimmerman, H. S. (C.)
Carterville—Aird, A. J. (L.)
[illegible], G. E. (C.)
[illegible], C. B. (L.)
[illegible] (C.)
Badzmierowski, M. J. (L.)
Benner, C. R. (L.)
Borchert, R. L. (L.)
Bowes, L. (C.)
Butterfield, F. R. (L.)
Clark, P. S. (L.)
Cohler, L. (L.)
Cooley, C. C. (L.)
Davis, B. F. (L.)
Dodson, J. M. (M.)
Doyle, T. F. (L.)
Duff, R. R. (C.)
Dunn, R. J. (C.)
Epstein, A. (L.)
Flinn, E. H. (L.)
Fomon, S. (C.)
Fortelka, F. L. (L.)
Furno, P. H. (L.)
Gibson, H. K. (C.)
Goldstine, M. T. (C.)
Golembiowski, J. J. (L.)
Grant, E. O. (C.)
Griffin, J. M. (C.)
Guca, G. D. (L.)
Gunn, W. P. (L.)
Hassin, G. B. (C.)
Hess, J. H. (M.)
Klein, S. (C.)
Lanski, J. (C.)
Linowiecki, A. J. (C.)
Little, W. G. (C.)
Merrell, H. H (C.)
Minker, M. (C.)
Moles, J. (L.)
Mulholland, W. J. (L.)
Naughton, M. T. (C.)
Nicholson, J. M. (C.)
Oklan, D. M. (C.)
Osborne, G. (C.)
Oyen, A. N. (L.)
Paul, D. F. (L.)
Pech, A. (C.)
Portis, M. M. (C.)
Poulsen, H. A. (L.)
Reeves, J. H. (C.)
Robertson, I. B. (L.)
Rush, E. A. (L.)
Senn, E. J. (M.)
Solomon, C. H. (C.)
Swan, C. J. (M.)
Tollefsen, A. D. (L.)
Vitullo, J. M. (L.)
Voigt, R. A. (L.)
Whitaker, W. B. (C.)
Wilcox, E. E. (L.)
Winterberger, E. F. (L.)
Woodruff, T. A. (M.)
Clinton—Shell, A. E. (L.)
[illegible], E. M. (L.)
[illegible] H. D. (C.)
Danville—Cook, [illegible] M. (L.)
Wheatley, E. J. (C.)
Winslow, E. L. (C.)
Durand—Roberts, C. A. (C.)
East Moline—Ellingsworth, J. H. (C.)
Love, H. J. (C.)
Easton—Grant, O. P. (C.)
East St. Louis—Hill, C. E. (C.)
Voris, H. M. (C.)
[illegible] H. F. (C.)
[illegible] H. (C.)
[illegible] C. S. [illegible] (L.)
Flora—Park, E. C. (L.)
Freeport—Best, E. H. (C.)
Galena—Fleege, F. H. (C.)
Galesburg—Hall, F. G. (C.)
Granite City—MacNamara, H. P. (L.)
Griggsville—Loveless, H. C. (L.)
Harvard—Eaton, H. D. (L.)
Herrin—Gardiner, W. R. (L.)
Highland—Kaeser, A. F. (C.)
Iuka—Finn, W. L. (C.)
Jacksonville—King, A. M. (C.)
Joliet—Watson, R. L. (L.)
Kankakee—Badger, P. R. (L.)
La Salle—Geiger, J. W. (L.)
Lexington—Williamson, W. T. (C.)
Lincoln—Hagans, F. M. (L.)
Madison—Church, O. C. (C.)
Mattoon—Carter, W. J. (C.)
McClure—Duncan, C. E. (L.)
Medora—Walton, J. E. (C)
Minonk—Millard, H. A. (C.)
Moline—Beck, H. E. (C.)
Oakley, R. W. (C.)
Ringnell, F. O. (C.)
Murphysboro—Evans, W. H. (L.)
Riscling, C. E. (L.)
New Berlin—Fulton, L. W. (L.)
[illegible] C. W. (L.)
[illegible] (L.)
[illegible] (C.)
Peoria—Paine, J. C. (C.)
Plano—Frederickson, G. (C.)
Pelo—Powell, C. E. (C.)
Quincy—Reticker, J. K. (C.)
Rockford—Fringer, W. R. (C.)
Roodhouse—Bates, C. R. (L.)
Edwards, O. L. (L.)
Springfield—De Freitas, J. A. (L.)
Hagler, A. L. (L.)
Spring Grove—Furlong, J. C. (C.)
Spring Valley—Ream, W. J. (L.)
St. Joseph—Dalton, A. J. (L.)
Streator—Lester, H. S. (C.)
[illegible], H. L. (C.)
[illegible] F. M. (L.)
[illegible] (C.)
Urbana—Miller, H. W. (C.)
Utica—Conger, J. H. (L.)
Watseka—Foster, T. R. (C.)
Waukegan—Gourley, F. L. (C.)
West McHenry—Froehlich, A. I. (L.)

INDIANA

Alexandria—Keller, F. G. (L.)
Anderson—Fattic, J. B. (M.)
McWilliams, O. E. (C.)
Angola—Humphreys, F. B. (M.)
Azalia—De Long, O. A. (L.)
Battle Ground—Biddle, F. M. (L.)
Bicknell—Dees, H. E. (L.)
Bloomingdale—Green, F. G. (L.)
Bloomington—Moser, J. E. (L.)
Brazil—Rawley, J. A. (C.)
Carlisle—Pirtle, G. W. (L.)
Center Point—Finch, G. R. (L.)
Cicero—Havens, F. D. (L.)
Columbus—Hays, G. R. (L.)
Tilton, R. M. (C.)
Flora—Peters, T. D. (L.)
Fort Wayne—Dupre, B. G. (L.)
Glock, H. E. (L.)
Rosenthal, M. I. (C.)
Geneva—Price, C. R. (L.)
Goshen—Page, W. B. (C.)
Greencastle—Gillespie, J. F. (L.)
Hanover—Henning, C. (L.)
Huntington—Krebs, M. H. (M.)
[illegible] C. W. (C.)
[illegible] J. M. (C.)
[illegible] (C.)
Eastman, J. R. (M.)
Eberwein, J. H. (L.)
Garrettson, J. A. (L.)
Kelly, W. F. (C.)
Kennedy, B. (M.)
Larkin, B. J. (L.)
Marxer, C. W. (C.)
Petersdorf, G. A. (C.)
Reid, F. P. (C.)
Walters, A. L. (L.)
Willan, H. R. (L.)
Jasper—Sturm, E. A. (C.)
Kouts—Dittmer, S. E. (L.)
LaFayette—Shafer, J. W. (C.)
Lakeville—Wiseman, C. S. (L.)
Lintoin—Craft, W. F. (L.)
Logansport—Flavien, E. B. (L.)
Gilbert, J. L. (C.)
Johnson, H. C. (M.)
McCulley, C. H. (C.)
Middletown—Arford, R. D. (L.)
Mitchell—Gibbons, G. I. (L.)
Monroe—Parrish, M. C. (L.)
Morristown—Patten, V. C. (C.)
New Richmond—Wray, C. M. (L.)
North Judson—Englerth, P. O. (C.)
Petersburg—Clark, S. R. (C.)
Riley—DePuy, C. M. (C.)
Seymour—Gillespie, C. E. (L.)
Shipshowana—Hunn, M. G. (C.)
South Bend—Crowe, H. M. (L.)
Owen, W. L. (C.)
Tennyson—Werry, L. E. (L.)
Terre Haute—Pavy, C. A. (L.)
Valparaiso—Blount, R. D. (C.)
Vincennes—Beckes, N. E. (C.)
Boyd, C. L. (C.)
Edwards, E. T. (L.)
Wakarua—Wagner, S. C. (L.)
Washington—Donaldson, A. I. (C.)
Youngstown—Drake, J. F. (L.)

IOWA

Albia—Griffin, J. M. (L.)
Bayard—Cooper, W. A. (L.)
Belle Plaine—Yavorsky, G. W. (C.)
Boone—Deering, A. B. (C.)
Healy, M. A. (C.)
Cedar Falls—Mead, F. N. (C.)
Cedar Rapids—Alt, R. C. (C.)
Charlton—Baskin, C. L. (L.)
Charter Oak—Hill, G. R. (C.)
Clarinda—Phillips, W. C. (C.)
Conrad—Gould, G. R. (L.)
Davenport—Allen, L. V. (C.)
Middleton, G. M. (C.)
Peck, R. E. (C.)
Denmark—Patchin, H. J. (L.)
Des Moines—Carpenter, W. S. (C.)
West, H. D. (L.)
Dubuque—Harris, R. R. (L.)
Dysart—Redmond, J. P. (C.)
Forest City—Lucast, T. (C.)
Glenwood—Moon, R. (C.)
Grinnell—Harris, E. E. (C.)
Harvey—Pascor, I. J. (L.)
Iowa City—Kimmel, E. E. (L.)
McMahon, T. (L.)
Iowa Falls—Wray, C. M. (L.)
Keokuk—Armentrout, C. R. (C.)
Hall, G. J. (L.)
Laurel—Patton C. W. (L.)
Mason City—Burke, T. A. (L.)
Merrill—Naffziger, A. (C.)
Mount Ayr—Lesan, C. T. (C.)
Mount Pleasant—Pitcher, J. J. (L.)
Mount Vernon—Ebersole, F. F. (C.)
Ogden—Ganoe, J. O. (C.)
Shenandoah—Brush, M. O. (L.)
Sioux Center—De Pree, S. B. (C.)
Sioux City—Carney, S. D. (C.)
Victor—Detchon, H. S. (L.)
Washington—Hull, H. C. (C.)
Waterloo—Brinkman, J. E. (C.)
Waverly—Sparks, F. R. (C.)

KANSAS

Altamont—Petty, C. N. (L.)
Anthony—Cronk, C. F. (C.)
Arkansas City—Wentworth, J. L.
Augusta—McKinney, R. B. (L.)
Baxter Springs—McCormick, G. C. (C.)
Blue Rapids—McFarland, C. R. (L).
Dodge City—Broderick, E. J. (C.)
Emporia—White, F. W. (L.)
Erie—Harlin, R. I. (C.)
Goessel—Richert, H. (L.)
Green—Morton, W. R. (L.)
Haviland—Wesley, P. F. (L.)
Hays—Meade, F. K. (C.)
Holton—Shaw, J. C. (C.)
Howard—DePew, F. L. (L.)
Hutchinson—Gage, G. R. (C.)
Independence—DeMott, C. W. (C.)
Kansas City—Walker, W. H. (C.)
Kinsley—Donnell, J. B. (L.)
Little River—Davis, H. W. (L.)
Lyons—McBride, J. S. (C.)
Medicine Lodge—Jordan, B. H. (C.)
Narka—West, J. W. (L.)
Neosho Falls—McCool, S. A. (C.)
Newton—Grove, J. L. (C.)
Ottawa—Michener, W. E. (L.)
Parsons—Landes, G. A. (C.)
Preston—Melton, D. W. (L.)
Quenemo—Poston, W. O. (L.)
Quintor—Rinehart, J. H. (C.)
Salina—Mowery, W. E. (L.)
Stafford—Butler, W. L. (L.)
Summerfield—Dodds, D. C. (L.)
Topeka—Alexander, H. A. (L.)
Goodman, A. R. (L.)
White, M. L. (L.)
Vinland—Yates, C. E. (L.)
Wakefield—Myers, E. A. (L.)
Wellington—Caldwell, J. C. (C.)
Hatcher, A. R. (L.)
Wichita—Crittenden, A. L. (L.)
Gardner, A. E. (L.)
Winfield—James, R. W. (C.)

KENTUCKY

Ashland—Dorroh, H. C. (C.)
Stephenson, L. W. (L. C.)
Bowling Green—Duncan, J. F. (L.)
Burkesville—Talbot, J. G. (C.)

Calvert City—Little, W. T. (L.)
Campbellsville—Gowdy, E. L. (L.)
Reesor, O. R. (C.)
Carrollton—Ryan, J. M. (L.)
Cave City—Turner, E. D. (L.)
Covington—O'Maley, J. M. (C.)
Eminence—Dowden, A. P. (L.)
[illegible] I. M. (L.)
[illegible] J. B. (C.)
[illegible] B. (C.)
[illegible] J. C. (L.)
Hopkinsville—Dade, R. (L.)
Gaither, J. G. (C.)
Lawrenceburg—Overall, A. C. (C.)
Lexington—Gordon, L. R. (L.)
Lewis, J. C. (C.)
Louisville—Clowney, S. C. (L.)
Crandell, L. A. (L.)
DeWitt, C. G. (C.)
English, C. C. (C.)
Fugate, I. T. (C.)
Grasser, E. T. (L.)
Jenkins, W. A. (M.)
Neff, C. O. (C.)
Redmon, E. C. (L.)
Rosenfield, W. H. (L.)
Stull, S. L. (L.)
Wolfe, C. T. (C.)
Moreland—Piper, M. L. (C.)
Newport—Anderson, W. W. (M.)
Paducah—Hoyer, F. A. (C.)
Stewart, P. H. (M.)
Washburn, B. A. (L.)
Parvin—Combs, V. R. (L.)
Springfield—Brandon, E. C. (C.)
Thomas—Bevins, H. C. (C.)
Union City—Jeffries, J. H. (L.)
Williamstown—Menefee, A. V. (C.)
Wilmore—Gillispie, V. C. (L.)

LOUISIANA

Alexandria — Gremillion, C. J. (L.)
Baton Rouge—Tucker, J. A. (C)
Belcher—Bugg, A. B. (C.)
Gonzalis—LeSueur, G. B. (C.)
Marksville—Kiblinger, E. (C.)
New Orleans—Beattle, C. A. (L.)
Geismar, S. (L.)
Harney, J. B. (L.)
Hauer, G. J. (L.)
Levin, A. L. (C.)
[illegible] (C.)
[illegible] R. P.
[illegible]
Ruston—White, S. L. (C.)
Shreveport—Garrett, B. C. (L.)
Winnfield—Kelly, D. W. (C.)

MAINE

Atlantic—Gage, I. B. (L.)
Biddeford—McNally, D. A. (C.)
Bridgeton—Mabry, I. E. (C.)
Lewiston—Dumont, L. J. (L.)
Madison—Pepper, J. L. (L.)
Portland—Caplan, E. (C.)
Howes, H. M. (L.)
McDonald, C. D. (C.)
Robinson, C. M. (C.)
Rockland—Carr, E. B. (L.)
Frohock, H. W. (L.)
South Portland—Lombard, L. S. (C.)

MARYLAND

Annapolis—Purvis, J. O. (C.)
Bel Air—Sappington, P. F. (C.)
Baltimore—Atkinson, A. D. (M.)
Councill, W. A. H. (L.)
Lehnert, E. C. (L.)
Martin, J. W. (L.)
Neymann, C. A. (L.)
Norris, J. E. (L.)
Smith, H. L. (C.)
Stein, A. (L.)
Teeter, E. H. (C.)
Zinn, W. F. (L.)
Damascus—Boyer, G. M. (M.)
Hagerstown—Branin, C. N. (C.)
Rumford—Wheet, F. E. (C.)
Westminster—Coonan, T. J. (C.)

MASSACHUSETTS

Attleboro—McDonald, H. L. (L.)
Ayer—Gross, A. B. (L.)
Belchertown—Eliot, H. W. (C.)
Boston—Birdsell, C. H. (L.)
Blodgett, S. H. (C.)
Devan, T. A. (L.)
Flagg, E. (C.)
George, A. W. (M.)
Goldberg, M. (L.)
Gordon, L. (L.)
Greene, D. C. (L.)
Hartnett, E. D. (L.)
Loring, R. G. (C.)
McClure, C. W. (C.)
McGillicuddy, C. J. (C.)
Mixter, S. J. (M.)
Stone, J. S. (M.)
Brockton—Condrick, J. J. (L.)
Mara, J. L. (L.)
Cambridge—Hutchinson, C. M. (C.)
Chelsea—Maxfield, G. H. (C.)
Chicopee—Gallagher, J. H. (L.)
Clara—Mason, G. D. (L.)
Fall River—Hicks, G. H. (L.)
Fitchburg—Pitcher, H. B. (L.)
Georgetown—Root, R. R. (L.)
Greenfield—Millett, F. A. (L.)
Haverhill—Cogswell, W. (M.)
George, A. P. (C.)
Kaplovitch, H. (L.)
Haydensville—Perry, C. E. (C.)
Holliston—Heffernan, D. W. (L.)
Holyoke—St. Georges, W. M. (L.)
Hyde Park—Dodge, R. O. (L.)
Leominster—Hoyt, D. G. (C.)
Lowell—Blanchard, P. D. (L.)
Rodger, J. Y. (L.)
Lynn—Hearn, W. L. (C.)
Marlboro—Dalton, S. J. (L.)
Merrill, C. H. (C.)
Newton—Guiler, R. W. (L.)
Marston, W. W. (L.)
Withee, F. E. (C.)
Northampton—Collins, J. D. (M.)
North Attleboro—Hale, W. L. (C.)
North Billerica—Forham, N. K. (L.)
Norwood—Gould, C. S. (L.)
Peabody—Foss, R. E. (L.)
Varney, E. M. (L.)
Reading—Dow, G. F. (C.)
Richmond, E. D. (L.)
Salem—Finnegan, P. J. (L.)
Springfield—Everett, F. (C.)
Gaylord, J. F. (L.)
Graham, J. P. (C.)
Hosley, W. A. (C.)
Leonard, W. J. (C.)
McKechnie, F. J. (C.)
Ritter, H. (C.)
State Farm—Seymour, W. Y. (C.)
Walpole—Connell, T. M. (L.)
Wellesley—Wiswall, E. H. (L.)
West Chelmsford—Toye, J. E. (C.)
West Medford—Coffin, W. K. (L.)
[illegible] F. C. (C.)
[illegible] H. (C.)
[illegible] J. (C.)
Worcester—Lindsay, J. C. (C.)
Nightingale, J. (C.)

MICHIGAN

Adrian—Morden, E. T. (C.)
Ann Arbor—Pearson, A. H. (L.)
Battle Creek—Elliott, J. A. (C.)
Parker, J. H. (L.)
Bedford—Rees, K. B. (L.)
Calumet—Joy, H. M. (C.)
Deckerville—Merriman, H. H. (C.)
Detroit—Clark, R. L. (L.)
Feller, R. L. (C.)
Garner, H. B. (C.)
Gellert, I. S. (L.)
Hensel, R. D. (L.)
McGraw, T. A., Jr. (L. C.)
Merrill, W. O. (L.)
Musser, F. C. (L.)
Palmer, H. G. (C.)
Radzinski, A. J. (L.)
Randall, O. M. (C.)
Fenton—McGarry, B. G. (C.)
Flint—Paull, A. T. (L.)
Grand Rapids—Eaton, R. R. (L.)
Greenville—Weaver, H. B. (L.)
Jackson—Winter, G. E. (C.)
Lake Linden—Collins, W. T. (L.)
Lyon—Grant, W. A. (L.)
Manistee—Ramsdell, L. S. (C.)
Mohawk—Tucker, A. R. (C.)
Monroe—Acker, W. F. (C.)
Mount Pleasant—Pullen, C. D. (C.)
Muskegon—Vanderlinde, L. A. (L.)
New Lothrop—White, H. T. (C.)
Niles—Carr, H. S. (L.)
Plymouth—Patterson, A. E. (C.)
Traverse City—Johnson, G. M. (C.)
Whitehall—Smith, C. F. (C.)
Wolverine—McKillop, A. J. (L.)

MINNESOTA

Duluth—Eaton, W. H. (C.)
Fairfax—Crandall, A. M. (L.)
Hallock—Shaleen, A. W. (C.)
Hibbing—Raadquist, C. S. (L.)
Hutchinson—Douglas, H. E. (L.)
Jackson—Arzt, H. L. (C.)
Kenyon—Gates, J. A. (C.)
Lake City—Cochrane, W. J. (C.)
Lamberton—Gleysteen, D. V. (C.)
Minneapolis—Doyle, J. W. (C.)
Jones, H. S. (C.)
Perry, R. S. (C.)
Rodgers, C. L. (L.)
Minneapolis—Sellers, H. H. (C.)
Winsell, F. F. (C.)
Monticello—Ellison, F. E. (C.)
Moorhead—Briggs. F. W. (C.)
Mountain Lake—Piper, W. A. (L.)
Northfield—Lee, W. P. (C.)
Onamia—Roadman, I. M. (C.)
Park Rapids—Higgs, W. W. (C.)
Pipestone—Powers, F. L. (L.)
Rochester—Crenshaw, J. L. (C.)
Horgan, E. J. (C.)
Sandstone—Bohling, B. S. (L.)
Slayton—Benoit, F. T. (L.)
Spring Valley—Kendick, W. N. (C.)
St. Paul—Boeckmann, E. (C.)
Starbuck—Christenson, C. R. (C.)
White Earth—Rodwell, T. F. (L.)

MISSISSIPPI

Banner—Watson, W. T. (L.)
Bude—Gray, R. E. (L.)
Carson—Nichols, V. N. (L.)
Coffeeville—Griffin, H. E. (L.)
Crowder—Grice, E. A. (L.)
Drew—Booth, B. H. (C.)
Enterprise—Irby, J. T. (C.)
Gloster—Lea, V. A. (C.)
Hazelhurst—White, J. C., Jr. (L.)
Hinchcliff—Franks, V. D. (L.)
Holly Springs—Greene, C. C. (L.)
Lamont—Miller, H. R. (C.)
Laurel—Kittrell, J. R. (C.)
[illegible] (L.)
[illegible] J. W. (C.)
[illegible] P. (L.)

MISSOURI

Aurora—Robertson, R. C. (L.)
Bolckow—Wood, W. L. (L.)
Bunceton—Kelly, R. Q. (L.)
Cape Girardeau—Porterfield, J. D., Jr. (C.)
Centralia—Mayes, O. B. (C)
Clinton—McNees, A. J. (C)
Columbia—Dysart, W .P. (C.)
Excelsior Springs—Parker, E. L. (L.)
Farmington—Weber, F. S. (L.)
Fayette—Richards, T. C. (C.)
Fulton—Hall, R. G. (C.)
Gordonville—Ford, W. W. (L.)
Greensburg—Gibbs, C. A. (L.)
Hamilton—Daley L. M. (L.)
Hannibal—Detwiler A. J. (C.)
Farrell J. J. (C.)
Paxon, C. E. (C.)
Hermann—Haffner, E. (C.)
Hughesville—Cartwright, C. P. (L.)
Huntsville—Bragg, G. G. (L.)
Mabee, J. R. (C.)
Joplin—Kaemmerling, G. G. (L.)
Kansas City—Anderson, W. C. (L.)
Cooper, C. L. (C.)
Greene, L. B. (C.)
Hamilton, E. P. (C.)
Hatch, F. J. (C.)
Hayden, J. G. (C.)
Martin, C. F. (L.)
Mathias, E. L. (C.)
Moreland, G. H. (C.)
Myers, J. L. (C.)
Nixon, J. W. (C.
Ragan, S. H. (L.)
Ruble, E. L. (L.)
Snider, J. S. (C.)
Laredo—Mairs, E. J. (L.)
Lowry City—Peelor, E. C. (C.)
Marceline—Patrick, P. L. (L.)
Marshall—Manning, D. F. (C.)
McLennan, T. A. (C.)
Mexico—Harrison, J. F. (C.)
Moberly—Dodson, C. L. (L.))
McCormick, F. L. (C.)
Monett—Russell, J. M. (C.)
Mound City—Quigley, B. T. (C.)
Mount Vernon—Shaw, F. W. (M.)
Neosha—Lamson, R. G. (C.)
Novelty—Noe, L. (L.)
Otterville—Fogle, R. L. (C.)
Palmyra—Roselle, T. A. (C.)
Paris—Ragsdale, G. M. (L.)
Pond—Dean, J. W. (L.)
Purdy—Kelly, B. B. (C.)
Salem—Rudd, W. E. (C.)
[illegible] J. (L.)
[illegible] C.)
[illegible] A. (L.)
[illegible] L., Jr. (L.)
[illegible] L. J. (C.)
Hansen, W. J. (L.)
Smith, A. S. (C.)
Wright, G. D. (C.)
St. Louis—Baepler, H. L. (L.)
DePew, H. B. (L.)
Dudley, C. E. (C.)
Eber, C. T. (L.)
St. Louis—Gorin, M. G. (C.)
Griot, G. A. (C.)
Humphrey, J. H. (C.)
Jeude, J. J. (C.)
Kring, R. (C.)
Link, E. X. (C.)
Loeb, H. W. (M.)
Luedde, W. H. (M.)
Marten, W. F. (L.)
Meredith, J. J. (C.)
Miller, H. B. (C.)
Moskop, P. G. (L.)
Phelan, R. A. (L.)
Pitzman, M. (L.)
Poe, J. D. (L.)
Porterfield, E. P. (C.)
Ravold, A. N. (M.)
Trawick, G. C. (C.)
Viehe, R. F. (L.)
Vierling, O. (L.)
Werner, A. A. (L.)
Wiesner, B. J. (L.)
Wright, D. P. (L.)
Sturgeon—McComas, A. R. (C.)
Sweet Springs—Ringen, A. H. (L.)
Urich—McDonald, J. G. (C.)

MONTANA

Big Timber—Claiborn, D. (L.)
Butte—Bernheim, L. (C.)
Williams, F. (L.)
Dillon—MacMillan, H. A. (L.)
Grant Falls—Durnin, R. B. (L.)
Great Falls—Frizzell, R. R. (L.)
Havre—Ward, A. L. (M.)
Lewistown—Foley, J. T. (C.)
Wilder, C. W. (L.)
[illegible] (L.)
[illegible] (L.)
[illegible] (C.)
[illegible] P. S. (L.)
[illegible] ngs—Gilhus, A. T. (C.)

NEBRASKA

Bancroft—Francis, H. W. (C.)
Coleridge—Braucht, F. E. (C.)
Fairbury—Culbertson, H. H. (C.)
Fremont—Buchanan, A. E. (C.)
Genoa—Williams, C. D. (C.)
Hartington—Stark, L. (C.)
Humphrey—LeMar, F. A. (C.)
Lincoln—Bogen, L. I. (C.)
[illegible] A. E. (C.)
[illegible] (L.)
[illegible] J. B. (L.)
[illegible] (M.)
[illegible] (L.)
Pender—Buis, J. (C.)
Red Cloud—Mitchell, R. S. (C.)
Riverton—Nail, F. E. (C.)
Seward—Ragan, S. E. (C.)
Tecumseh—Curtis, J. M. (L.)
[illegible] (L.)
[illegible] L. (C.)
[illegible]

NEVADA

Lovelocks—Kitchen, J. (L.)
Smith, E. K. (C.)
McDermitt—Rees, J. T. (L.)
Tonopah—Cunningham, J. R. (C.)

NEW HAMPSHIRE

Bristol—Robertson, F. M. (C.)
Franklin—Lagace, A. (L.)
Manchester—Guillet, N. E. (M.)

NEW JERSEY

Atlantic City—Berner, D. (L.)
Chesler, M. J. (L.)
Gurin, A. A. (L.)
Park, F. S. (L.)
Caldwell—Verbeck, G. B. (C.)
Clifton—Vreeland, R. J. (L.)
Collingwood—Rogers, E. B. (C.)
East Orange—Mitchell, F. B. (C.)
Thompson, A. F. (M.)
Elizabeth—Green, J. S. (M.)
Gloucester—Fox, R. T. (L.)
Hoboken—Arlitz, W. J. (C.)
Landing—Wright, G. R. (L.)
Long Branch—Welch, J. T. (C.)
Montclair—Harris, H. (L.)
Hochberg, N. M. (L.)
Morristown—Vincent, G. W. V. (C.)
Netcong—Bird, F. L. (L.)
Newark—Asher, M. (C.)
Decker, C. L. (C.)
Derivaux, J. A. (L.)
Hailperin, C. J. (L.)
Miningham, W. D. (C.)
Reinfeld, A. G. (L.)
Rubinow, S. M. (C.)
Passaic—Armstrong, R. R. (C.)
Paterson—Cohen, M. (L.)
Duncan, O. B. (C.)
Marsh, E. J. (C.)
Oram, J. H. (C.)

Plainfield—Cregar, P. B. (C.)
  Probasco, N. H. (C.)
Riverton—Witte, F. C. (L.)
Summit—Clark, C. P. (L.)
Sweedesboro—DeGrofft, V. E. (C.)
Trenton—Dickinson, E. A. A. (L.)
  Rogers, L. H. (L.)
Union Hill—Brady, C. S. (C.)
Vineland—Clippinger, R. D. (L.)
  Winslow, J. H. (L.))
West Hoboken—D'Acierno, P. A. (L.)
Woodbridge — Hoagland, B. W. (C.)

NEW MEXICO

Alamogordo—Scott, W. M. (C.)
Albuquerque—Angle, G. K. (C.)
Gallup—Pratt, A. C. (C.)
Park View—Sewell H. D. (C.)
Raton—Fulton, C. W. (L.)
Silver City—Hooper, E. W. (C.)

NEW YORK

Adams—Hollis, S. C. (C.)
Albany—Bellin, M. (L.)
  Maguire, F. B. (L.)
Alexandria Bay—Hartman, L. J. (C.)
Allegany—Gould, J. (L.)
Auburn—Johnson, R. F. (L.)
  Neville, W. H. (C.)
Au Sable Forks—Culver, G. J. (C.)
Beacon—Dugan, C. B (C.)
Brooklyn—Anderson, A. L. (C.)
  Carlin, N. S. (L.)
  Cavanagh, P. F. (C.)
  Cohan, L. L. (L.)
  Crawford, F. D. (L.)
  Dawson, E. A. (L.)
  Doyle, G. J. (C.)
  Drew, H. C. (C.)
  Foehrenbach, H. P. (L.)
  Gerber, R. A. (L.)
  Gillespie, F. B. (L.)
  Gilmartin, A. E. (L.)
  Golly, H. C. (L.)
  Jacobs, L. (L.)
  Kopf, J. B. (C.)
  Mulot, O. L. (C.)
  Reichers, G. H. (C.)
  Resnicoff, M. (L.)
  Roberts, D. D. (M.)
  Ryback, J. (L.)
  Schneible, I. M. (L.)
  Vinski, F. V. (L.)
  Zwerling, S. (L.)
Buffalo—Benedict, A. L. (C.)
  Boyle, F. M. (C.)
  Clarke, E. A. D. (L.)
  De Dominicis, R. N. (L.)
  Fisher, R. C. (L.)
  Frost, E. L. (L.)
  Gaylord, H. R. (M.)
  Gianfranceschi, J. S. (L.)
  Hendee, L. (C.)
  Hoffman, F. J. (C.)
  Mendlein, F. A. (C.)
  O'Callahan, W. K. (C.)
  Wagner, A. W. (L.)
Chadwicks—Griffith, E. M. (C.)
Chateaugay—Sprague, L. P. (C.)
Churchville—Vail, E. H. (C.)
Cohoes—Smith, A. E. (L.)
Corning—Hutton, E. H. (C.)
  Rodgers, A. H. (C.)
Douglaston—Billings, J. S. (M.)
Elmira—Carey, C. L. (L.)
  Dann, R. H. V. (C.)
Fairport—Price, G. S. (C.)
Fisher's Island—Mittlestaedt, C. B. J. (C.)
Fort Slocum—Gittleson, M. (L.)
Franklinville—Randall, C. L. (C.)
Freeport—Lindsay, G. (C.)
Fulton—Feesenden, C. L. (L.)
Ithaca—Merriam, H. E. (C.)
Jefferson—Topping, C. H. (L.)
Lisbon—Cleland, L. F. (C.)
Little Falls—Vickers, H. W. (C.)
Montour Falls—Baker, R. O. (L.)
Naples—Manly, F. W. (C.)
New York—Brandt, M. L. (L.)
  Chickering, H. T. (C.)
  Cox, H. M. (C.)
  Cromley, J. B. (C.)
  Deal, F. A. (C.)
  De Sanctus, A. G. (L.)
  Edelsack, B. (L.)
  Edlin, J. S. (L.)
  Epstein, A. A. (C.)
  Farr, C. E. (C.)
  Fine, A. (L.)
  Fuller, D. M. (L.)
  Geraci, L. A. (L.)
  Gillespie, D. P. (L.)
  Goldberg, H. H. (L.)
  Gordin, A. E. (L.)
  Gottlieb, C. (L.)
New York—Guile, H. V. (C.)
  Haden, J. B. (L.)
  Hays, H. M. (M.)
  Holladay, E. W. (C.)
  Jacobs, H. S. (L.)
  Keyes, S. J. (C.)
  King, E. A. (C.)
  Korn, P. (L.)
  Ladd, W. S. (L.)
  Loughran, F. W. (M.)
  Maddo, A. S. (C.)
  McBurney, M. (C.)
  Milbank, S. (L.)
  Mills, W. S. (C.)
  Murphy, J. D. (C.)
  Ratliff, H. M. (C.)
  Rudderow, E. D. (C.)
  Schaie, M. (L.)
  Schultze, E. C. (C.))
  Walsh, J. J. S. (C.)
  Weil, S. (L.)
Ogdensburg—Madill, G. C. (C.)
  Stearns, M. J. (C.)
Olcott—Pickett, F. R. (C.)
Oneida—Pfaff, O. (L.)
Oswego—Calisch, A. C. (C.)
Penn Yan—Matthews, H. W. (C.)
Pleasantville — Robinson, H. E. (L.)
Port Chester—Ornstein, G. G. (C.)
Poughkeepsie—Wilson, J. S. (C.)
Rochester — Beirmeister, J. F. (L.)
  Bowen, W. E. (C.)
  Clark, G. H. (L.)
  Gianfranceschi, G. J. (L.)
  Johnson, A. M. (C.)
  Kieffer, T. J. (C.)
  Lerner, M. L. (C.)
  Marion, G. A. (C.)
  Reynolds, E. R. (L.)
  Wendel, E. J. (L.)
  Woodbury, W. R. (C.)
Rockwell's Mills—Winsor, E. C. (L.)
Rye—Hogben, G. J. (L.)
Schenectady—Gardinier, C. (L.)
  [illegible] C. C. (M.)
[illegible] D. A. (C.)
[illegible] R. L. (L.)
Staten Island—Coonley, F. (C.)
  Driscoll, A. S. (C.)
Syracuse—Cooper, R. S. (L.)
  Foreman, T. F. (C.)
  Stewart, S. (C.)
Tarrytown—Chace, A. E. (C.)
Troy—Decker, I. V. (L.)
Watertown—Jones, E. W. (C.)
  Montgomery, H. C. (L.)
West Albany — Wilkins, E. W. (L.)
West Henrietta—Ames, J. A. (C.)
White Plains—Meyer, W. J. (C.)

NORTH CAROLINA

Asheville—Reeves, A. F. (C.)
Beaufort—Maxwell, C. S. (C.)
Canton—Pegram, R. W. S. (L.)
Farmville—Willis, W. M. (L.)
Gastonia—Anderson, J. A. (C.)
Graham—Barefoot, J. J. (C.)
Hertford—McMullan, T. S. (C.)
High Point—Burrus, J. T. (L. C.)
Lilesville—Kerr, J. E. (C.)
Louisburg — Yarborough, R. F. (C.)
  [illegible] P. B. (L.)
[illegible] y, M. B. (C.)
Salisbury—Shafer, I. E. (L.)
Summerfield—Wilson, N. G. (C.)
Tyner—Whichard, M. P. (L.)
Wilmington—Miller, J. F. (C.)

NORTH DAKOTA

Bismarck—Rund, H. O. (L.)
Carrington—Goss, E. L. (L.)
Fargo—Aylen, J. P. (M.)
Mandan—Miller, J. P. (L.)
Minot—McCannel, A. D. (C.)
Parshall—Frogner, G. S. (L.)
Wimbledon—Wanner, W. B. (C.)

OHIO

Akron—Clark, L. D. (L.)
  Gillespi, B. H. (L.)
  Gregg, R. A. (L.)
  Humphrey, L. B. (C.)
Alexandria—Johnston, E. H. (C.)
Amsterdam—Atwell, Z. F. (C.)
Athens—Douthitt, C. M. (L.)
Barberton—Livermore, F. B. (C.)
Bellefontain—Loffer, O. W (C.)
Bellevue—Dewey, H. R. (C.)
Bluffton—Hughson, B. E. (C.)
[illegible] C. R. (L.)
[illegible] T. (L.)
Cincinnati—Benjamin, J. E. (C.)
  Faller, A. (C.)
  Hahn, E. (L.)
  Lurie, L. A. (L.)
  Manss, C. W. (C.)
Cincinnati—Nieman, S. C. (C.)
  Wilson, M. E. (L.)
[illegible] C. B. (C.)
[illegible] R. (C.)
  Bryant, D. J. (L.))
  Chandler, K. H. (L.)
  Costello, T. A. (L.)
  Gallagher, F. J. (L.)
  Garvin, E. C. (L.)
  Goodman, I. (L.)
  Gurley, E. W. (C.)
  Hurt, J. A. (C.)
  Lee, F. C. (C.)
  Manley, R. M. (C.)
  Sawicki, B. J. (L.)
  Trego, W. E. (L.)
  Warren, A. W. (L.)
Columbus—Creed, C. H. (L.)
  Duffee, W. E. (L.)
  Hoy, C. D. (C.)
  Myers, H. E. (L.)
Columbus Grove—Morris, F. (C.)
  Wilcox, G. S. (L.)
Creston—Allen, V. I. (L.)
Dayton—Bond, R. R. (L.)
  [illegible] (L.)
[illegible] G. (L.)
[illegible]
  Nicholas, G. D. (C.)
Forest—Rabberman, W. H. (C.)
Fredericktown—Cole, R. E. (L.)
Gallipolis—Morgan, E. H. (M.)
Jamestown—Dennis, G. K. (L.)
Leipsic—Hickey, W. D. (C.)
Letart Falls—Crary, H. L. (C.)
Lodi—Whitacre, J. G. (L.)
[illegible] V. (C.)
[illegible] C. S. (L.)
[illegible] H. (L.)
Marion—Mahla, F. E. (L.)
  Weiser, W. J. (L.)
Marysville—Hoopes, C. W. (L.)
Mount Healthy—Smedley, A. L. (C.)
Nevada—Dwire, H. E. (C.)
Newcomestown — Goudy, R. A. (L.)
North Canton—Frick, L. L. (L.)
Ohio City—Reeder, M. E. (L.)
Orville—Irvin, G. H. (C.)
Payne—Miller, J. C. (C.)
Portsmouth—Rardin, J. S. (M.)
Revenna—Gatchell, W. L. (C.)
Santoy—Warren, J. R. (L.)
Seville—Brintnall, R. A. (C.)
[illegible] J. C. (L.)
[illegible] I. C. (C.)
Toledo—Frick, J. M. (L.)
  Harvey, J. H. (C.)
  Louy, C. (C.)
  Patterson, P. M. (L.)
  Wendt, E. S. (L.)
  Wright, J. F. (L.)
Van Wert—Kreider, F. P. (C.)
Walhonding—Curaton, B. F. (C.)
Wellington—Gregg, F. B. (L.)
Willshire—Roller, W. C. (L.)
Wren—Reed, F. E. (L.)
Zanesville—Geyer, H. R. (C.)

OKLAHOMA

Allen—Mills, J. T. (L.)
Altus—Abernethy, E. A. (L.)
Apache—Myers, P. B. (L.)
Bokoshe—King, J. T. (C.)
Bull—Price, E. S. (L.)
Chattanooga—Kerr, G. E. (C.)
Cherokee—Rhodes, T. A. (C.)
Clinton—Rogers, M. (C.)
Comanchee—Cowan, J. P. (C.)
Coyle—Dorough, J. L. (L.)
Elk City—Tisdal, V. C. (L.)
Geary—Milligan, E. F. (L.)
Gotebo—Watkins, B. H. (L.)
Grainola—Miller, E. L. (L.)
Guthrie—Lovelady, B. (C.)
  Ritzhaupt, L. H. (L.)
Henryetta—Boswell, H. D. (L.)
Holdenville—Eckles, G. R. (C.)
Hillsdale—McMahan, A. M. (L.)
Idabel—Moreland, W. A. (L.)
Kiefer—Artz, T. L. (L.)
Kiel—Cavett, E. R. (L.)
Kinta—Waltrip, J. R. (L.)
[illegible], R. L. (L.)
[illegible] F., R. (L.)
[illegible] C. O. (L.)
McLoud—Williams, A. J. (L.)
Muskogee—Walton, F. L. (C.)
Norman—Thacker, R. E. (L.)
Nowata—Lawson, D. M. (C.)
Oklahoma City—Day, C. R. (C.)
  Dresbach, H. V. (L.)
  Mahr, J. C. (C.)
  Pine, J. S. (C.)
Pawhuska—Aaron, W. H. (L.)
Spiro—Hartshorne, G. E. (L.)
Tecumseh—Goodrich, E. E. (L.)
Tipton—Mabry, E. W. (L.)
Tulsa—Felt, R. A. (L.)
  Geissler, P. C. (L.)
Watonga—Doty, H. W. (L.)

OREGON

Eugene—Gullion, *W. T.* (L.)
Gold Hill—Chisolm, W. P. (L.)
  Dixon, O. C. (L.)
Hood River—Abraham, V. R. (M.)
Pendleton—Tamiesie, A. E. (C.)
[illegible] H. (M.)
[illegible]
  Pargon, J. A. (C.)
  Parker, H. C. (C.)
  Sommer, E. A. (C.)
  Wood, J. F. (C.)
Prinville—Rosenberg, J. H. (C.)
Rainier—Ditto, J. F. (L.)
Roseburg—Vincil, F. H. (C.)

PENNSYLVANIA

Allentown—Matz, J. D. (C.)
Ambler—Fine, W. E. (C.)
Bellevue—Farquhar, G. W. (C.)
Braddock—Egan, J. P. (L.)
Butler—McCall, W. A. (C.)
Carrick—Updegraff, H. C. (C.)
Chester—Orr, A. V. B. (C.)
Clearfield—Piper, W. S. (C.)
  Rowles, L. C. (C.)
Connellsville—Bailey, W. J. (C.)
Crafton—Stoneman, M. U. (C.)
Dallastown—Frey, C. W. (L.)
Danville—Williams, E. T. (L.)
Dixmont—Heller, P. K. (L.)
Dormont—Golden, J. F. (L.)
Dunbar—Carroll, J. B. (L.)
Elysburg—Allison, C. E. (L.)
Fort Washington—Craig, A. J. (L.)
[illegible] (C.)
[illegible] H. (L.)
[illegible] (C.)
[illegible] E. M. (L.)
Halifax—Smith, F. C. (C.)
Hazelton—Fagan, P. E. (C.)
Johnstown—Basil, A. A. (L.)
  Hay, G. (L.)
  Porch, L. L. (L.)
Lancaster—Kauffman, A. C. (C.)
  Myers, D. M. (C.)
Lansford—Kistler, R. H. (L.)
Lawrenceville—Smith, L. C. (C.)
Leaman Place—Leaman, W. J. (L.)
Lock Haven—Lubrecht, J. L. (C.)
McKeesport — Hinchman, R. S. (L.)
Meadville—Ferar, C. K. (C.)
Monessen—Israel, I. J. (L.)
Mount Lebanon—Palmer, C. L. (C.)
New Brighton—Mead, H. B. (C.)
New Castle — Grossman, L. W. (L.)
  Urey, F. F. (C.)
New Kensington—Parks, D. H. (L.)
Oil City—Dickey, E. L. (M.)
Philadelphia — Albrecht, H. E. (M.)
  Bernstein, A. (L.)
  Brown, B. (C.)
  Brown, H. J., Jr. (M.)
  Cloud, C. N. (C.)
  Cooke, E. S. (C.)
  Coover, D. B. (L.)
  Farrar, J. D. (C.)
  Ferguson, G. M. (C.)
  Fleitas, J. (L.)
  Forman, H. J., Jr. (L.)
  Fought, E. N. (C.)
  Jackson, T. W. (M.)
  Jump, H. D. (M.)
  Keeler, J. C. (C.)
  Leidy, C. F. M. (C.)
  Lipshutz, B. (L.)
  Matlack, T. (C.)
  Norris, G. W. (Col.)
  O'Brien, M. C. (C.)
  Pilling, G. P., Jr. (C.)
  Rodman, J. S. (M.)
  Saylor, E. S. (C.)
  Schwartz, M. J. (L.)
  Shoemaker, W. T. (M.)
  Tunis, J. P. (C.)
  Van Lennep, G. A. (C.)
  Wood, G. B. (M.)
Pittsburgh—Anderston, J. H. W. (C.)
  Bradford, M. A. (L.)
  Brown, S. S. (C.)
  Burns, R. G. (C.)
  Emmerling, K. A. (M.)
  Foster, E. N. (L.)
  Goehring, W. N. (L.)
  Gorfinkell, J. (L.)
  Grazier, G. G. (L.)
  Marshall, C. C. (C.)
  McKenna, W. B. (C.)
  Milligan, J. D. (M.)
  Sable, D. E. (M.)
  Tucker, G. F. (C.)

Pittston—Rubinstein, H. (L.)
Reading—Darrah, L. C. (L.)
Rorke, J. H. (C.)
Reedsville—Kohler, B. R. (C.)
Rimersburg—Summerville, H. B. (C.)
Schuylkill—Weaver, R. F. (L.)
Scranton—Douglas, J. N. (C.)
Gardner, A. P. (L.)
Hower, H. V. (C.)
Jenkins, D. J. (C.)
Sharon—Marshall, C. C. (C.)
White, H. (C.)
Sinking Spring—Matternes, J. G. (C.)
Somerset—Norris, J. F. (L.)
Springville—Diller, W. L. (C.)
St. Marys—Le Van, J. K. (C.)
St. Peters—Smith, H. T. (C.)
Sunbury—Gass, H. W. (C.)
Geise, S. B. (L.)
Swarthmore—Carr, F. C. (L.)
Tulford—Cope, R. Z. (L.)
Warren—Condit, G. S. (L.)
Washington — Edwards, D. H. (L.)
Waynesburg—Knox, J. A. (C.)
Wilkes-Barre—Davis, W. J. (C.)
Freeman, S. L. (C.)
Williamsburg—Frye, J. C. (L.)
Williamsport—Hull, W. W. (C.)
Lamade, A. C. (C.)
Wysox—Down, H. C. (L.)

RHODE ISLAND

Pawtucket—Vance, M. E. (C.)
Providence—Coughlin, F. C. (L.)
Heaton, H. W. (C.)
Metcalf, R. (L.)
Rushton, P. H. (L.)
Shaw, R. H. R. (C.)
Sweeney, J. W. (C.)
Wyman, T. C. (L.)
Woonsocket—Flynn, T. S. (L.)

SOUTH CAROLINA

Anderson—Ross, C. F. (C.)
Bennettsville—Kirkpatrick, L. R. (M.)
Charleston—Deas, H. (L.)
Lynch, K. M. (C.)
Chester—Malone, H. B. (C.)
McLurkin, C. A. (L.)
Columbia—Riser, L. A. (C.)
Cottageville—Miller, C. J. (L.)
Florence—Graham, R. M. (L.)
Gray Court—Gray, E. B. (L.)
Greer—Wood, L. W. (L.)
Hemingway—Baker, W. B. (L.)
Lexington—Folk, R. H. (L.)
Orangeburg—Green, C. I. (L.)
Pendleton—Lawrence, J. H (C.)
Pickens—Robinson, L. F. (L.)
Ridge Springs—Smith, L. J. (C.)
Rock Hill—Friedheim, S., Jr. (L.)
Saluda—Wise, O. P. (L.)
St. George—Behling, A. S. (L.)
Walterboro — Ackerman, W. B. (C.)

SOUTH DAKOTA

Aberdeen—Whiteside, J. D. (C.)
Lake Preston—Mahin, F. M. (C.)
Sioux Falls—Culver, C. F. (C.)
Donahoe, W. E. (L.)
Waubay—Doupe, J. H. (L.)
Webster—Brown, A. E. (C.)

TENNESSEE

Chattanooga—Fletcher, H. Q. (L.)
Chestnut Mound—King, J. H (C.)
Cottage Grove—Paschall, E. B. (L.)
Dyersburg—Berry, J. B. (L.)
East Chattanooga—Eldridge, J. C. (C.)
Franklin—German, D. (C.)
Knoxville—Haun, L. A. (C.)
Layman, R. B. (C.)
Newman, R. H. (M.)
Mason—Grimmitt, W. A. (L.)
Memphis—Baird, W. O. (L.)
Davenport, R. R. (L.)
Watson, W. A. (L.)
Morristown—Ruble, W. G. (C.)
Mosheim—Cloyd, T. D. (L.)
Murfreesboro—White, B. N. (L.)
Nashville—Horan, W. A. (L.)
Newbern—Brewer, J. D. (C.)
Rudolph—Gill, J. M. (L.)
Sewanee — Kirby-Smith, R. M. (M.)
Sparta—Johnson, W. M. (C.)
St. Elmo—Gilbert, E. A. (L.)

TEXAS

Amarillo—Murphy, G. S. (M.)
Athens—Webster, J. K. (L.)
Atlanta—Long, R. L. (L.)
Bandera—Butler, J. O. (L.)
Bay City—Jones, C. P. (C.)
Beaumont—Mann, D. A. (C.)
Swonger, J. B. (C.)
Beeville—Neeley, H. (C.)
Turner, A. J. (L.)
Bells—Gould, W. C. (L.)
Bowie—Lawson, J. T. (C.)
Breckenridge—Rhodes, B. F. (L.)
Brownwood—Dildy, J. E. (L.)
Camden—Crimes, I. (L.)
Christoval—Wilkison, W. S. (L.)
Coleman—Lynch, T. P. (L.)
College Station—Ehlinger, O. (C.)
Dallas—Dickey, E. V. (L.)
Duncan, M. J. (C.)
Ellis, L. C. (L.)
Jones, W. D. (C.)
McReynolds, J. O. (M.)
Decatur—Fullingim, P. J. (L.)
Eastland—Roaten, S. P. (L.)
El Paso—Dysart, J. C. (C.)
Rogers, W. P. (C.)
Ennis—Campbell, W. E. (C.))
Germany, J. W. (C.)
Flatonia—Kotzebus, A. M. (C.)
Galveston—Kenner, E. N. (C.)
Garner—Barrett, L. C. (L.)
Houston—Morris, R. T. (C.)
Parkhill, F. G. (C.)
Jonesboro—Crawford, C. H. (C.)
Lamesa—Gilliam, H. A. (L.)
Lone Oak—Lander, R. G. (L.)
Mart—Cannon, I. F. (L.)
Mason—Baze, P. A. (L.)
Mount Calm—Morris, T. M. (L.)
Munday—Davis, J. D. (L.)
Paris—Fitzpatrick, W. W. (C.)
Ramsey, F. D. (L.)
Pecos—Camp, J. (L.)
Pharr—Doss, J. M. (L.)
Pittsburg—Lacy, R. Y. (C.)
Pontotoc—Wilson, R. A. (L.)
Port Arthur — Swearingen, M. (L.)
Quail—Moss, E. W. (L.)
Red Oak—Rogers, J. O. (L.)
Richmond—O'Farrell, J. M. (C.)
Rockdale—Sessions, I. P. (C.)
Rockwall—Austin, J. L. (L.))
Sabinal—Hudson, S. B. (C.)
San Angelo—Lynn, B. (L.)
San Antonio—Clavin, E. C. (C.)
Pagenstecher, G. A. (L.)
Sherman — McElhannon, A. M. (C.)
Strawn—Pedigo, W. S. (C.)
Tyler—Smith, L. E. (C.)
Valley View—Cunningham, O. W. (L.)
Village Mills—Anderson, W. W. (L.)
Waco—McWhirter, W. L. (L.)
Weatherford — MacNelly, C. M. (C.)
Westhoff—Frey, C. (L.)
Wichita Falls—Lane, A. L. (C.)

UTAH

Heber—Dannenberg, B. A. (L.)
Hatch, H. R. (L.)
Murray—Pace, G. H. (L.)
Ogden—Badcon, S. W. (C.)
Park City—Bardsley, W. J. (C.)
Provo—Taylor, F. W. (M.)
Salt Lake City—Field, G. J. (L.)
Giesy, J. U. (C.)
Murphy, A. J. (C.)

VERMONT

Brattleboro—Rice, T. (C.)
Burlington—Murray, E. F. (C.)
Hardwick—Crane, E. M. (C.)
Montpelier—Lindsay, W. (C.)
Newcomb, L. A. (C.)
Morrisville—Slayton, W. T. (C.)
Waitsfield—Howard, W. J. (C.)
Winooski—Paulson, M. J. (L.)

VIRGINIA

Abingdon—Le Gannaway, W. (L.)
Alexandria—Powell, L. (M.)
Fayerdale—Lancaster, A. C. (C.)
Glamorgan—Ramsey, J. T. (L.)
Hampton—Bassett, B. (L.)
Harrisonburg—Firebaugh, T. C. (C.)
Lovettsville—Foley, C. E. (L.)
Manassas—Newman, W. A. (M.)
Middletown—Williams, T. A. (L.)
Monrovia—Derby, A. P. (C.)
Newport News—Jones, J. W. C. (C.)
Norfolk—Hunter, J. W., Jr. (C.)
Webb, J. Q. (L.)
Petersburg—McGill, E. L. (C.)
Nixon, E. J. (C.)
Osborne, J. D. (C.)
Richmond—Courtney, C. B. (L.)
Righter, F. P. (L.)
Vorbrinck, T. M. (L.)
Roanoke—Saunders, W. H. (C.)

WASHINGTON

Aberdeen—Hopkinson, L. (L.)
Cashmere—Martin, H. (L.)
Fairfield—Ensley, G. W. (C.)
La Conner—Greason, C. E. (L.)
Lyman—Blair, F. M. (C.)
North Yakima—Brown, W. M. (C.)
Redmond—Davis, G. A. (C.)
Republic—Bevis, E. M. (L.)
Seattle—Gardner, F. P. (L.-C.)
Null, M. M. (M.)
Quilliam, L. R. (L.)
Wilson, C. E. (L.)
Winslow, K. (M.)
Sedro-Woolley — Frazee, C. M. (L.)
Selah—Makins, H. M. (L.)
Spokane—Ingersoll, E. L. (C.)
Matthews, J. G. (C.)
Reger, E. L. (C.)
Tacoma—McCreery, C. R. (C.)
Van Pelt, R. S. (L.)
Walla-Walla — Robinson, F. C. (C.)

WEST VIRGINIA

Bluefield—Hare, O. S. (C.)
Bowen—Peirce, G. L. (C.)
Charleston—Nicholson, H. G. (C.)
Clarksburg—Gribble, O. S. (C.)
Dorothy—Pettry, H. H. (C.)
Eckman—Hammond, H. G. (L.)
Erbacon—Stroud, C. G. (L.)
Farmington—Vaughan, C. M. (L.)
Freemansburg—Hall, E. T. W. (C.)
Huntington—Hatfield, H. D. (M.)
Heald, W. W. (L.)
Kenova—Goff, T. N. (L.)
Mannington—Leahy, W. J. (C.)
Martinsburg — Porterfield, M. H. (L.)
Moundsville—Covert, O. F. (C.)
Newburg—Fortney, F. D. (C.)
Parkersburg—Deem, H. N. (L.)
Griffith, O. H. (L.)
Pennsboro—Jones, L. P. (C.)
Point Pleasant — Girard, A. R. (L.)
Pullman—Fling, I. S. W. (L.)
Reedy—Cordon, A. T. (L.)
St. Albans—Shirkey, C. P. (C.)
Wilson, W. H. (C.)
Talcott—Ryan, D. M. (C.)
Wallace—Whisler, H. A. (L.)
Weston—Cure, M. D. (C.)
Wheeling—Cracraft, W. A. (C.)
Fulton, W. S. (C.)
Oesterling, H. E. (C.)

WISCONSIN

Bayfield—Mertens, H. G. (C.)
Bloom City—Ross, J. M. (L.)
Boscobel—Tuffley, F. S. (C.)
Chilton—Forkin, W. P. (C.)
Clintonville—Jefferson, H. A. (C.)
Cuba City—Donnell, J. E. (L.)
Delavan—Rice, C. W. (L.)
Elderon—Phelps, E. J. (C.)
Fond du Lac — Marshall, F. P. (L.)
Janesville—Fifield, G. W. (C.)
Munn, W. A. (L.)
Junction City—Reis, G. W. (L.)
Kaukauna—Flanagan, G. J. (L.)
Kenosha—Robinson, H. A. (C.)
La Crosse—Maurer, A. A. (C.)
Mattoon—Partridge, O. F. (C.)
Mayville—Docter, J. C. (L.)
Milladore—Myers, C. E. (L.)
Milwaukee—Bachinski, L. J. (L.)
Dickinson, G. H. (C.)
Eisenburg, P. J. (L.)
Gillespie, W. W. (L.)
Gramling, H. J. (L.)
Madison, J. D. (C.)
Warfield, L. M. (M.)
Mineral Point — Gratiot, W. M. (C.)
New London—Borchardt, A. L. C. (C.)
Oconto Falls—Goggins, R. J. (C.)
Oshkosh—Andrews, N. (C.)
Bickel, E. F. (C.)
Haubrick, H. J. (L.)
Seneca—Farrell, T. E. (C.)
Sheboygan—Nichols, R. M. (C.)
St. Nazianz—Minahan, J. J. (L.)
Stockbridge—Doern, R. E. (L.)
Two Rivers—Farrell, A. M. (M.)
Viroqua—Lauder, C. E. (C.)
Watertown—Haney, F. C. (C.)

WYOMING

Lander—Cooper, A. H. (C.)
Lane, C. E. (C.)
Laramie—Price, J. W. (L.)
Lusk—Dale, D. H. (L.)
Upton—Ross, D. C. (L.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arizona

To Camp Travis, Texas, as tuberculosis examiner, from Camp MacArthur, Capt. R. E. THOMAS, Phoenix.

Arkansas

To Fort Sam Houston, Texas, base hospital, from Camp Logan, Capt. J. I. SCARBOROUGH, Little Rock.

California

To Camp Fremont, Calif., base hospital, from Camp Kearney, Capt. T. REA, Oakland; Lieut. H. D. BARNARD, Sacramento.

To Camp Lewis, Wash., from Vancouver Barracks, Major S. B. WHITING, Los Angeles; from Washington, Capt. C. A. BELL, Santa Barbara.

To Camp Travis, Texas, as tuberculosis examiner, from Camp MacArthur, Lieut. L. E. TRETHAWAY, French Camp.

To Fort McHenry, Md., from Army Medical School, Lieut. T. M. HART, Los Angeles.

To San Francisco, Calif., Letterman General Hospital, from Camp Kearney, Capts. W. W. MACKENZIE, A. C. THORPE, Lieut. A. M. SCHOLZ, Los Angeles; from Fort Sill, Capt. A. H. REINSTEIN, San Francisco.

Canal Zone

To Panama Canal Zone, from Walter Reed General Hospital, Capt. L. B. BATES, Ancon.

Colorado

To Camp Devens, Mass., from Camp Custer, Lieut. G. A. ASHBAUGH, Central City.

To Eastview, N. Y., from Camp MacArthur, Lieut. C. E. CONDON, Breckenridge.

Connecticut

To Camp Custer, Mich., from Camp MacArthur, Capt. R. S. STARR, Hartford.

Delaware

To Cape May, N. J., from Fort Adams, Major G. I. McKELWAY, Dover.

District of Columbia

To Army Medical School, from Camp Greene, Lieut. A. L. GUERRA, Washington.

To Camp Meade, Md., base hospital, from Dayton, Ohio, Capt. E. M. HASBROUCK, Washington.

To Cape May, N. J., from the Surgeon-General's Office, Col. W. F. TRUBY.

Florida

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. W. T. LANIER, Homestead.

Georgia

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. R. DUCAT; from New Haven, Lieut. T. H. CLARK, Douglas.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. C. R. LANAHAN.

To Fort Benjamin Harrison, Ind., from Camp Meade, Major J. H. BUTLER, Augusta.

To Fort Porter, N. Y., from Fort Oglethorpe, Lieut.-Col. J. E. BASTION.

To Fort Sheridan, Ill., as commanding officer, from Fort Oglethorpe, Col. W. N. BISPHAM.

To Manila, P. I., from Fort Oglethorpe, Capt. E. L. COOK; Lieut. W. M. CAFFEE.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. C. A. STAYTON.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Colonia, Capt. J. M. BARNETT, Albany.

To Walter Reed General Hospital, from Fort Oglethorpe, Lieut.-Col. M. ASHFORD.

Illinois

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. I. H. CHILCOTT, Chicago.

To Camp Dix, N. J., base hospital, from New Haven, Lieut. C. S. BOWMAN, Alsey.

To Camp Gordon, Ga., from Walter Reed General Hospital, Lieut. J. R. SHOLL, Peoria.

To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Camp MacArthur, Lieut. L. NEWMAN, Chicago.

To Chicago, Ill., from Fort Riley, Lieut. N. C. BULKLEY, Chicago; from Long Beach, N. Y., Lieut. J. A. CONNELL, Waukegan.

To Detroit, Mich., from Camp Logan, Major F. G. DYAS, Chicago.

To Fort Sheridan, Ill., *from* Camp Custer, Lieut. P. N. WASSEL, Moline; from Camp Shelby, Lieut. Y. JORANSON, Chicago.

To Miami, Fla., Chapman Field, from Arcadia, Major L. C. COLLINS, Chicago.

To Mineola, N. Y., Hazelhurst Field, from Plattsburg Barracks, Capt. W. O. KROHN, Chicago.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Capt. F. P. HORAN, Evanston.

Indiana

To Camp Custer, Mich., base hospital, from New Haven, Lieut. J. E. ROGERS, Marion.

To Camp Dodge, Iowa, base hospital, from New Haven, Lieut. F. A. KIMBLE, Anderson.

To Hot Springs, N. C., from Camp Zachary Taylor, Lieuts. E. O. DANIELS, Marion; C. C. MACKEY, Whiting.

To Jeffersonville, Ind., from Camp Grant, Major D. C. PEYTON, Jeffersonville.

The following order has been revoked: *To Eastview, N. Y.*, from Fort Oglethorpe, Lieut. W. S. COLEMAN, Rushville.

Iowa

To Camp Beauregard, La., *base hospital*, from Camp Bowie, Lieut. B. B. MILLER, Tabor.

To Camp Dodge, Iowa, base hospital, from Camp Lee, Capt. J. G. ROBERTS, Oskaloosa.

To Camp Sherman, Ohio, base hospital, from *Boston*, Lieut. W. J. FENTON, Mystic.

To San Francisco, Letterman General Hospital, from Camp Kearney, Capt. R. H. RYLOS, Hudson.

Kansas

To Camp Beauregard, La., base hospital, from Camp Bowie, Capt. R. R. NEVITT, Mildred.

To Fort Riley, as tuberculosis examiner, from Camp MacArthur, Capt. L. S. HARVEY, Council Grove.

To Fort Robinson, Neb., from *Fort Riley*, Lieut. W. S. HUNTER, Norton.

Kentucky

To Camp Grant, Ill., base hospital, from Walter Reed General Hospital, Lieut. G. L. THOMPSON, Lovelaceville.

To Camp Kendrick, N. J., from Columbus, Capt. J. M. MORRIS, Chestnutburg.

To Camp Upton, N. Y., from Fort Oglethorpe, Lieut. W. M. WATKINS, Louisville.

To Garden City, N. Y., from Mineola, Capt. G. A. ROBERTSON, Louisville.

To Hot Springs, N. C., from Fort Oglethorpe, Capt. J. H. HOHNSTEDT, Fort Thomas.

To Plattsburgh Barracks, N. Y., *from* Camp Joseph E. Johnston, Capt. J. M. FERGUSON, Central City.

Maine

To Army Medical School for instruction, *from* Fort McPherson, Capt. R. VAN NESS BLISS, Bangor.

To Fort Leavenworth, Kan., from Camp Crane, Major F. H. JORDAN, South Portland.

Maryland

To Army Medical School for instruction, *from* the Surgeon-General's Office, Major R. T. TAYLOR, Baltimore.

To Camp Meade, Md., base hospital, *from* Boston, Lieut. G. R. MICKLETWAITE, Baltimore.

To Hot Springs, N. C., from Camp Zachary Taylor, Capt. T. R. PAYNE, Corbett.

To the Surgeon-General's Office, from Washington, Brig.-*Gen.* W. S. THAYER, Baltimore.

Massachusetts

To Camp Devens, Mass., base hospital, from Camp Zachary Taylor, Capt. W. I. CLARK, Jr., Worcester.

To Camp Meade, Md., base hospital, from Camp Devens, Major A. W. SELLARDS, Boston.

To Camp Upton, N. Y., from Camp Dix, Lieut. F. W. CRAWFORD, Holbrook.

To East Norfolk, Mass., from Plattsburg Barracks, Major G. E. McPHERSON, Harding.

To Garden City, N. Y., from Minneapolis, Capt. J. G. JENNINGS, Boston.

To Lakewood, N. J., from Camp A. A. Humphreys, Capt. G. G. SMITH, Boston.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Boston, Capt. F. G. BARNUM, Coolidge Corner; from Lakewood, Lieut. R. C. JONES, Fitchburg.

To Williamsbridge, N. Y., from Fort Constitution, Capt. F. T. CLARK, Westfield.

Michigan

To Camp Dix, N. J., and on completion *to Camp Zachary Taylor, Ky.*, *from* the Surgeon-General's Office, Capt. W. D. MAYER, Detroit.

To Camp Hancock, Ga., from Camp Jackson, Capt. H. W. EMERSON, Ann Arbor.

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. H. S. COLE, Whitehall.

To Detroit, Mich., from Camp Abraham Eustis, Lieut. L. B. COWEN, Detroit; *from* Camp Sevier, Lieut. R. H. REUDEMANN, Ann Arbor.

To Garden City, N. Y., from Mineola, Lieut. W. A. DEFNET, Detroit.

The following orders have been revoked: *To Camp Dodge, Iowa*, to examine the troops *for* cardiovascular diseases, from Fort Oglethorpe, Lieut. J. H. RAPP, Lansing. *To Fort Snelling, Minn.*, from Fort Oglethorpe, Lieut. D. W. PATTERSON, Port Huron.

Minnesota

To Pittsburgh, Pa., from *Fort Porter*, Lieut. A. D. CORNIEA, St. Paul.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort McPherson, Lieut. S. V. HODGE, Minneapolis.

To Walter Reed General Hospital, from Mineola, Capt. A. S. HAMILTON, Minneapolis.

The following order has been revoked: *To Fort Des Moines, Iowa*, from Camp Dodge, Capt. A. N. COLLINS, Duluth.

Mississippi

To Camp A. A. Humphreys, Va., to examine the command for *nervous and mental diseases, from Fort McPherson*, Lieut. W. M. MERRITT, Boyle.

Missouri

To Arcadia, Fla., Carlstrom Field, as flight surgeon, from Montgomery, Capt. J. H. TIMBERMAN, Marston.

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. C. L. CONRAD, Pleasant Hill.

To Camp Dix, N. J., base hospital, from Camp Sevier, Lieut. D. J. ROYER, Joplin.

To Camp Upton, N. Y., *from Fort Oglethorpe*, Capt. C. C. SIMMONS, Bunker.

To Cape May, N. J., *from Fort Oglethorpe*, Major M. WIENER, St. Louis.

To Denver, Colo., from Garden City, Capt. J. J. REILLY, St. Louis.

To East Norfolk, Mass., from Camp Greene, Capt. A. G. WICHMANN, St. Louis.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. F. S. TARLETON, St. Louis.

To Fort Sheridan, Ill., from Camp Sherman, Capt. C. A. LEAVY, St. Louis.

To Hoboken, N. J., from Pittsburg, Kan., Capt. R. B. BREWSTER, Kansas City.

To Hot Springs, N. C., from Camp Dodge, Capt. F. J. KREBS, St. Louis.

To Manila, P. I., from *Fort Oglethorpe*, Lieut. G. W. RICE, Kansas City.

To Pittsburgh, Pa., from Newport News, *Capt.* T. M. PAUL, St. Joseph.

To Rockefeller Institute for instruction in *the treatment of* infected wounds, and *on* completion *to his proper station*, *from Otisville*, Capt. G. W. KOENIG, St. Louis.

To West Baden, Ind., from Camp Dodge, Capt. J. M. BRADLEY, St. Louis.

Montana

To Camp Lewis, Wash., base hospital, from New Haven, Lieut. A. B. ECKERDT, Helena.

To Hot Springs, N. C., from Camp Zachary Taylor, Lieut. J. E. ARNOLD, Miles City.

Nebraska

To Camp Gordon, Ga., to examine the command for nervous and mental diseases, from Camp *MacArthur*, *Capt.* B. F. WILLIAMS, Lincoln.

New Hampshire

To Garden City, N. Y., from *Mineola*, Capt. G. H. PARKER, Hanover.

To Scituate, Mass., from *Penniman*, Va., Capt. W. P. CRAIG, Walpole.

New Jersey

To Army Medical School, from Fort Oglethorpe, Capt. A. C. REEVES, East Orange.

To Camp Dix, N. J., *base hospital*, *from* Camp Gordon, Lieut. J. N. PANNULLO, Newark.

To Camp Travis, Texas, as *tuberculosis* examiner, from Camp MacArthur, Lieut. L. V. ROSENTHAL, *Trenton*.

To Camp Upton, N. Y., from *Camp* Dix, Capt. A. H. WARD, Paterson.

To Garden City, N. Y., from Mineola, *Capt.* A. B. RUSSELL, East Orange.

To Hoboken, N. J., from Camp Lee, Major C. E. MacDONALD, Salem.

To Washington, D. C., Surgeon-General's Office, from Cape May, Col. P. F. STRAUB.

New York

To Camp Dix, N. J., base hospital, from Camp Gordon, Capt. B. F. BLACKMAR, Brooklyn.

To Camp Dodge, Iowa, from Camp MacArthur, Lieut. R. WEST, New York.

To Camp Fremont, Calif., base hospital, from Madison Barracks, Lieut.-Col. C. W. HAVERKAMPF.

To Camp Grant, Ill., from *West Baden,* Lieut. L. HAUSMAN, New York. Base hospital, from Army Medical School, Lieut. J. W. SMITH, Jr., Brooklyn.

To Camp Lee, Va., base hospital, from Camp Sevier, Capt. C. C. SICHEL, New York.

To Camp Sherman, Ohio, as tuberculosis examiner, from Camp Pike, Lieut. F. GRABOFF, New York.

To Camp Travis, Texas, from Camp Joseph E. Johnston, Major W. C. MILLER, New York.

To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Camp MacArthur, Lieut. E. F. SAMPSON, New York.

To East Norfolk, Mass., from Camp Lee, Lieut. A. L. OBERDORFER, New York; from Edgewood, Md., Lieut. H. C. BURGESS, Canandaigua.

To Eastview, N. Y., from New Haven, Lieut. I. E. LISS, New York.

To Everman, Texas, Barron Field, as flight surgeon, from Lonoke, Ark., Capt. W. A. SCRUTON, New York.

To Fort Des Moines, Iowa, from Camp Sherman, Lieut. R. W. MORIARITY, New York.

To Fort Ontario, N. Y., from Panama Canal Department, Capt. E. T. RAY, New York.

To Hoboken, N. J., from Camp Hancock, Lieut. H. B. FEUERSTEIN, New York; from Lexington, Ky., Capt. G. F. MILLS, Oneida.

To Lakewood, N. J., from New Haven, Major J. W. PRICE, Saranac Lake.

To Madison Barracks, N. Y., from Pittsburgh, Capt. R. D. BAKER, Summit.

To Mineola, N. Y., Hazelhurst Field, from Camp A. A. Humphreys, Lieut. E. A. EVERETT, Middletown.

To Otisville, N. Y., from Camp Shelby, Lieut. H. A. LATANE, Mount McGregor.

To Plattsburg Barracks, N. Y., from Fort Thomas, Ky., Lieut. S. W. MILLER, Jr., New York.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Azalea, Capt. L. H. FINCH, Amsterdam; from Colonia, Lieut. W. A. BEHAN, Binghamton; from Fort Oglethorpe, Capt. A. A. MOORE, New York.

To West Baden, Ind., from Camp Sherman, Capt. E. A. CARPENTER, New York.

To Williamsbridge, N. Y., from Walter Reed General Hospital, Capt. N. E. TITUS, New York.

The following orders have been revoked: *To Army Medical School* for instruction, from Fort Oglethorpe, Lieut. C. A. WISCH, Niagara Falls. *To Cape May, N. J.,* from Fort Oglethorpe, Lieut. G. C. ANDERSON, New York. *To Fort McPherson, Ga.,* from Camp Crane, Lieut. J. L. KINNER, Elmira.

North Carolina

To Azalea, N. C., from Otisville, Lieut. J. W. WILLCOX, Laurel Hill.

To Fort Ontario, N. Y., from Camp Greene, Lieut. W. H. MYTINGER.

Ohio

To Army Medical School for instruction, from Camp Abraham Eustis, Capt. L. B. ZINTMASTER, Massillon.

To Aberdeen, Md., from Penniman, Va., Lieut. L. V. BATES, Columbus.

To Camp Dix, N. J., from Camp Greene, Capt. H. B. BLAKEY, Columbus.

To Camp McClellan, Ala., from Camp MacArthur, Lieut C. H. CHASE, Cleveland.

To Fort Benjamin Harrison, Ind., from Camp MacArthur, Capt. G. H. WETZEL, Sapulpa.

To Fort Oglethorpe, from Camp Dodge, Lieut. H. G. BEATTY, Columbus.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Boston, Capt. H. B. DORNBLASSER, Springfield.

Oklahoma

To Everman, Texas, Barron Field, from Wichita Falls, Texas, Lieut. L. A. NEWTON, Oklahoma City.

Oregon

To Camp Lewis, Wash., from Portland, Ore., Capt. C. E. HAWKE, Forest Grove; Lieut. J. L. ELWOOD, Maupin; from Vancouver Barracks, Lieut. M. C. FOX, Lakeview.

Pennsylvania

To Camp Devens, Mass., from Rockefeller Institute, Major J. V. KLAUDER, Philadelphia.

To Fort Sam Houston, Texas, base hospital, from Camp Hancock, Lieut. W. H. HAINES, Philadelphia; from Camp Sevier, Capt. G. S. DEIBERT, Allentown.

To Fort Terry, N. Y., from New Haven, Conn., Lieut. A. D. DYE, Masten.

To Hoboken, N. J., from Plattsburg Barracks, Major T. WEISENBURG, Philadelphia.

To Metuchen, N. J., from Camp Pike, Lieut. C. L. McCOY, Pittsburgh.

To Miami, Fla., Chapman Field, from St. Paul, Capt. J. E. STRUTHERS, Danville.

To New Haven, Conn., from Fort Oglethorpe, Capt. C. M. MONTGOMERY, Philadelphia.

To Pittsburgh, Pa., from Camp Meade, Lieut. E. S. WEIMER, Pittsburgh.

To Walter Reed General Hospital, from Cape May, Lieut C. A. BEHNEY, Myerstown; from Fort Terry, Lieut. E. RANDALL, Jr., Philadelphia.

To Washington, D. C., St. Elizabeth's Hospital, from New Haven, Lieut. C. H. MANLOVE, Jr., Altoona. From Surgeon-General's Office, Camp Meade, Capt. W. J. EZICKSON, Philadelphia.

The following order has been revoked: *To Camp Bowie, Texas,* from New York, Lieut. E. P. WICKERHAM, Pittsburgh.

Rhode Island

To Fort Oglethorpe, from Camp Crane, Lieut. N. H. COPENHAEVER, Providence.

To Newport News, Va., from Camp Hancock, Capt. F. A. FEARNEY, Providence.

The following order has been revoked: *To Fort McPherson, Ga.,* from Fort Oglethorpe, Capt. N. C. BAKER, Providence.

South Carolina

The following order has been revoked: *To Camp Crane, Pa.,* from Hoboken, Lieut. F. L. MARTIN, Mullins.

South Dakota

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. D. W. SULLIVAN, Britton.

Tennessee

To Army Medical School, from Fort Oglethorpe, Lieut. E. L. HOOPER, Cordova.

To Camp Upton, N. Y., from Camp Dix, Lieuts. M. KAPLAN, Memphis; L. F. VERDEL, Normal.

Texas

To Army Medical School, from Fort Oglethorpe, Capt. W. H. MORROW, Dunn.

To Austin, Texas, from Mineola, Capt. L. C. G. BUCHANAN, Big Springs.

To Camp Cody, N. M., base hospital, from Southern Department, Capt. F. L. PASCHAL, San Antonio.

To Camp Gordon, Ga., to examine the command for nervous and mental diseases, from Camp MacArthur, Lieut. C. W. CASTNER, Terrell.

To Camp Jackson, S. C., from Camp MacArthur, Lieut. M. B. BADT, Fort Worth.

To Camp Logan, Texas, from Camp MacArthur, Capt. J. B. LEGNARD, Houston. Base hospital, from Walter Reed General Hospital, Major J. A. HILL, Houston.

To Camp Travis, Texas, as assistant to the camp surgeon, from Camp Jackson, Major F. HARRISON, Ralls.

To Fort Bayard, N. M., from Camp Hancock, Major I. S. KAHN, San Antonio.

To Fort Bliss, Texas, base hospital, *from Fort Sill,* Lieut. G. TURNER, Iredell.

To Fort Leavenworth, Kan., from Camp Crane, Capt. L. M. WEINFIELD, San Antonio.

To Rockefeller Institute for instruction in the treatment *of infected* wounds, and on completion *to his proper station,* from Fort McHenry, Capt. M. W. SHERWOOD, Temple.

Utah

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. G. N. CHRISTY, Vernal.

Vermont

To Camp Shelby, Miss., base hospital, from Camp Wheeler, Lieut. L. M. KELLEY, Manchester Center.

To Pittsburgh, Pa., from Camp Forrest, Lieut. A. A. CROSS, Williamstown.

Washington

To Camp Lewis, Wash., from Vancouver Barracks, Capt. E. S. REEDY, Seattle.

To Fort George Wright, Wash., from Fort Riley, Capt. J. W. HEWETSON, Seattle.

To Riverside, Calif., March Field, as flight surgeon, from San Diego, Capt. G. W. BEELER, Seattle.

West Virginia

The following order has been revoked: *To Camp Lee, Va.,* base hospital, from Edgewood, Lieut E. B. HENSON, Charleston.

Wisconsin

To Camp Sherman, Ohio, as tuberculosis examiner, from Camp Pike, Capt. H. C. CALDWELL, St. Croix Falls.

Wyoming

To St. Louis, Mo., from Fort D A. Russell, Col. B. J. EDGER, Jr.

UNITED STATES PUBLIC HEALTH SERVICE

Surg. B. J. LLOYD, relieved at Bremerton and Seattle, Wash., proceed to [illegible] ry *for duty.*

Surg. [illegible] relieved at New *Orleans, La.,* and from temporar [illegible] antine Station. Proceed to Fort Stanton, N. Mex., for duty.

Passed Asst. Surg. C. P. KNIGHT, proceed to Little Rock, Ark., on temporary duty.

Passed Asst. Surg. CARL MICHEL, relieved at *Hartford,* Conn., proceed to Manteo, N. C., on duty *in the* control of influenza epidemic.

Asst. Surg. R. R. SPENCER, detached from duty with the U. S. Navy.

Asst. Surg. C. R. ESKEY, proceed to the Savannah, Ga., Quarantine Station for temporary duty.

Asst. Surg. R. W. HART, proceed to the Army Hospital at Colonia, N. J., for observation of plastic bone *operations.*

Asst. Surg. R. L. WAUGH, relieved from duty on Coast Guard Cutter *Bear.*

Scientific Asst. SEVERANCE BURRAGE, relieved at Ayer, Mass., report to National Tuberculosis Association for duty.

San. Insp. B. F. DARYMPLE, relieved at Macon, Ga., proceed to Newport News, Va., for duty in extracantonment sanitation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal.—Dr. James M. Boyd, Ravana, was appointed acting assistant surgeon, U. S. P. H. S., Oct. 18, 1918, and sent to Foreman for relief work in the influenza outbreak, and from there to Little Rock, Conway and Yell counties.——Drs. Cyrus F. Crosby, Heber Springs, and Hercules R. Webster, Texarkana, have been appointed members of the state board of health for a period of four years.

COLORADO

Personal.—Dr. William M. Moore, LaJunta, is reported to be seriously ill in Orlando, Fla.——In the case of Dr. Bennett Graff, Denver, recently convicted of causing the death of Mrs. Ruth Camp, through an illegal operation, the judgment was reversed by the supreme court, January 6.——Dr. Livingston Farrand, Boulder, president of the University of Colorado, has been made an officer of the Legion of Honor in recognition of his work as head of the Rockefeller Anti-Tuberculosis Commission to France.——Dr. William A. Kickland, Fort Collins, who has been seriously ill with pneumonia, is reported to be improving.——Dr. Edward P. Hummel, Sterling, has been elected president of the Northeastern Colorado Medical Association.

CONNECTICUT

Personal.—Dr. William M. Stockwell has been appointed superintendent of health of Hartford.——Dr. Frederick E. Wilcox, Willimantic, has been appointed medical examiner (coroner) for the towns of Hampton, Chaplin, Windham and Scotland.

New Officers.—The Connecticut Society of Social Hygiene held its eighth annual meeting in the rooms of the Hartford Medical Society, Dec. 18, 1918, and elected the following officers: president, Prof. Charles A. E. Winslow, New Haven (reelected); secretary, Dr. Thomas N. Hepburn, Hartford, and treasurer, Mrs. Josephine B. Bennett, Hartford.

ILLINOIS

Personal.—Dr. Ola A. Kibler, for several years head physician at the State Home for Boys, St. Charles, has resigned to accept a similar position in Milwaukee, and Dr. W. E. Weisman of the State School for the Feebleminded, Lincoln, has been appointed to fill the vacancy.

Sanatorium Soon to Open.—The LaSalle County Tuberculosis Sanatorium at South Ottawa will be formally opened to the public, February 2. Exercises will include addresses by Dr. Kimball W. Leland, Utica, president of the sanatorium board; Dr. George Thomas Palmer, Springfield, president of the Illinois Tuberculosis Association; Dr. C. St. Clair Drake, Springfield, director of the state department of public health; Dr. David R. Lyman, president of the National Tuberculosis Association, and Dr. Hugh M. Orr, LaSalle.

Physician's License Revoked.—The license of Dr. W. J. Crozier to practice medicine and surgery in all their branches in the state of Illinois was revoked by the Department of Registration and Education of Illinois on Saturday, Jan. 18, 1919, for the following specific charges: (*a*) That he has advertised under a name other than his own. (*b*) That he has by false or fraudulent representation obtained or sought to obtain practice in his profession. (*c*) That he has by false or fraudulent representation of his profession obtained or sought to obtain money or any other things of value.

Chicago

Polish Society Elects Officers.—At the annual meeting of the Chicago Polish Medical Society, held, Dec. 30, 1918, the following officers were elected: president, Dr. Wladyslaw A. Kuflewski; vice president, Dr. Marie T. O. Kaczorowski; treasurer, Dr. Francis F. Wisniewski, and secretary, Dr. Michael C. Goy.

Personal.—Casey A. Wood, Lieut.-Col., M. C., U. S. Army, has gone to San Diego, and after a visit there will go to the Leland Stanford, Jr., University for several months of special work.——Capt. H. I. Davis, A. R. C., is chief of the neurologic service in the American Red Cross Evacuation Hospital No. 3, located at Trier in Germany.

Irregular Practitioners Fined.—Mr. W. M. Hayes of 3813 State Street, according to his own statement, a "Divine Healer," was arrested by the Department of Registration and Education of the State of Illinois for violating the Medical Practice Act, and fined $100 by Judge Caverly of the Municipal Court of Chicago. When an inspector of the department called on the "Divine Healer," he diagnosed his ailment and said he could cure him by prayer. He took the right hand of the inspector in his hand, laid his left on the inspector's head and offered a prayer, at the conclusion of which he pronounced the inspector cured and demanded $3. The inspector told him he had but $1 and the "Divine Healer" took that in full payment for his services. Within a few hours he was arrested.——Mr. L. W. Miller, a chiropractor at 1705 West Madison Street, was arrested by the department for violating the Medical Practice Act. He was fined $25 and costs for practicing without a license.——Mr. Grant E. Mitchell, an osteopath at 5228 Ellis Avenue, was arrested by the department, and was fined $25 and costs for practicing without a license, in violation of the Medical Practice Act.

MARYLAND

Back from France.—Drs. Hugh H. Young and Dr. Francis X. Kearney, both of Baltimore, have returned from France. Dr. Kearney has resumed his position as superintendent of Mercy Hospital.

New Officers.—Baltimore County Medical Society at its annual meeting, January 15, elected Dr. Frank W. Keating, Owings Mills, president; Dr. John W. Harrison, Middleriver, vice president, and Dr. Alfred T. Gundry, Catonsville, secretary-treasurer.——Talbot County Medical Society at its annual meeting, held at Easton, Dec. 30, 1918, elected the following officers: president, Dr. Edward R. Trippe, Easton; vice president, Dr. James B. Merritt, Jr., Easton, and secretary-treasurer, Dr. Joseph A. Ross, Trappe.

Child Hygiene Bureau Established.—Dr. Mary Sherwood, Baltimore, has been named as the chief of the bureau of child hygiene to be established at the health department. Her assistant will be Dr. Mary Cook Willis. The appointments were announced by the mayor at the conclusion of a conference with Health Commissioner Blake and Drs. William H. Welch, J. H. Mason Knox, Jr., John Howland, John Ruhräh, James M. H. Rowland, Grover F. Powers, William T. Howard, Jr., and John F. Hogan, all of Baltimore. Dr. Mary Sherwood was asked to make a report as to the scope of the work which is to be started this year, out of an appropriation of $30,000 made by the board of estimates.

Increase in Influenza Cases.—With 300 new cases in Baltimore and 1,048 in the counties, influenza established, January 23, a record that has not been equalled since the height of the epidemic last fall. Health Commissioner Blake called a meeting of his advisory board and discussed with them the situation as it has been reported to him by the health wardens, public health nurses and by physicians in private practice. The discussion resulted in the unanimous opinion that all was being done that the exigencies of the case demanded and that better results could not be obtained by more drastic measures which the board felt entirely unnecessary at this time. Of the 1,048 cases reported to the state department of health, 483 came from Allegany County, many of them doubtless carried over from the epidemic period. Reports of 232 new cases came from Dorchester County, which represent actual conditions in that part of the state.

Personal.—Brig.-Gen. John M. T. Finney, Baltimore, chief consulting surgeon of the American Expeditionary Forces, who sailed nineteen months ago for France as head of the John Hopkins Base Hospital Unit, returned to the United States aboard the *Melita*, January 22.——Lieut. Samuel J. Price, Queenstown, who went to France early in 1918, has returned to his home in Centerville. He sustained wounds from shrapnel in the right leg and also was in the hospital for some time suffering from gas poisoning.——Capt. George L. Stickney, who has been in France since May, 1917, serving with the American forces in the Toul sector, is expected to arrive in this country at an early date. Captain Stickney was wounded at Soissons, July 18, and was under treatment in a hospital for three months. Later he was assigned to duty at the American Base Hospital at Autun.——Dr. Jules Duesberg, the Belgian scientist, will sever his connections as a member of the faculty of the Johns Hopkins University and sail for Belgium on February 12. Dr. Duesberg came to Baltimore in 1915. He is a native of Liege and received his degree as doctor of medicine at Liege University in 1905. In 1906 he went to Kiel, Germany, to take up anatomic research work, and in 1911 was made professor of anatomy at the Liege University, where he will now resume his work. ——Dr. Harry S. Jarrett of Towson, who has been under treatment at the Mercy Hospital, Baltimore, is convalescing at Atlantic City, N. J.——Dr. Joshua Rosett of Baltimore has been under director of an expedition sent out by the Red Cross from Vladivostok to combat a threatened epidemic of typhus in Siberia.

MASSACHUSETTS

Personal.—Dr. Wilfred E. Rounseville has been appointed city physician of Attleboro.——Major David D. Scannell, M. C., U. S. Army, Jamaica Plain, has returned after nearly six months' service in command of American Hospital No. 7, American Expeditionary Forces, Tours, France.——Dr. Albert S. Hyman, Boston, has been appointed assistant resident physician to the Long Island Hospital, and Charles M. Flagg, assistant medical advisor of the Consumptive Hospital, Boston.——Dr. Anngenette Fowler-Noble has been elected president of the Westfield Visiting Nurse Association.

Industrial Health Board Named.—President Lowell and Fellows of Harvard University have appointed the following committee to work in conjunction with members of the course in industrial health recently established at the University to extend similar work to mercantile establishments: George W. Mitton, president of the Jordan-Marsh Company; F. Alexander Chandler, president of the Chandler-Farquhar Company; Thomas H. Cory, vice president of the William Filene's Sons Company; George E. Johnson, president of the R. H. White Company; Robert H. Maynard vice president of the R. H. Stearns Company; Felix Vorenberg, vice president and secretary of the Gilchrist Company, and Thomas M. B. Hicks, Jr., secretary. The committee announces that the sum of $50,000 to finance the project will be obtained. The probable scope of the committee includes an investigation into the character of health supervision of mercantile employees in large cities of the United States; an analysis on the basis of this investigation of the best methods of safeguarding the health of such employees; a listing of the complaints which are standard causes for lost time on the part of the mercantile employees; the analysis of the extent to which tuberculosis, venereal disease and other serious conditions, existing in retail stores, and the development of a system of health education for store employees.

NEW YORK

Committee Enlarges Scope.—At the meeting of the executive committee of the Rochester Tuberculosis Committee, held January 16, it was proposed to recommend that the name of the organization be changed to The Tuberculosis Association of Rochester and Monroe County.

Amendment to Sanitary Code.—At a meeting of the public health council of the state department of health, Dec. 4, 1918, Regulation 36 of Chapter II of the Sanitary Code relating to the minimum isolation period for measles was amended to read as follows: "Measles, until at least five days after the appearance of the rash."

Personal.—Dr. John D. Howland, Buffalo, resumed, January 16, his duties as superintendent of the Erie County Hospital which were interrupted by his absence overseas on military service.——Dr. George S. Staniland, Buffalo, has been appointed temporary acting health commissioner during the illness of Acting Health Commissioner Gram.

New York City

Personal.—Dr. Henry Dwight Chapin has been appointed chairman of the Public Health Subcommittee of Governor Smith's Reconstruction Committee formed to solve postwar problems.——Dr. Bernard Sachs has been elested president of the medical board of Mount Sinai Hospital, to succeed Dr. Abraham Jacobi, who has resigned after thirty-five years of active service.

Women Give Hospital to Roosevelt Memorial Expedition.—The Aviation Committee of the National Special Aid Society has voted to contribute the complete hospital equipment and supplies for the Roosevelt Memorial Arctic Expedition which is to start by airplane for the Polar regions in June of this year.

Health Commissioner Copeland Starts New Plan.—Dr. Royal S. Copeland announced, January 25, that he had appointed Dr. S. Dana Hubbard to start the work of the division of industrial hygiene under the new plan which separates this division from the bureau of preventable diseases of which Dr. Louis I. Harris is director.

Influenza Again Increases.—During the sixteenth week of the influenza outbreak in this city, ending January 25, there has been a steadily mounting number of cases recorded each day, until, for January 24, there were 672 new cases reported. This renewed outbreak of the epidemic has caused Health Commissioner Copeland to request the police to again distribute circulars containing suggestions as to how a recurrence of the epidemic may be avoided.

Organizations Endorse Health Bill.—At a meeting of the council of organizations, representing between 400 and 500 bodies in New York, January 24, ways of meeting the present health emergency were discussed, and resolutions were passed approving the Rankin-Robinson bill now before Congress, which has for its aim the preservation of all the bureaus of industrial hygiene. It was the consensus of opinion that it was highly important that matters pertaining to public health be brought to the attention of Congress for proper legislative action, especially infant hygiene. The council of organizations also put itself on record as protesting against the action of Health Commissioner Royal S. Copeland in removing the division of industrial hygiene from the bureau of preventable diseases.

OHIO

State Association Meeting.—The Ohio State Medical Association announces it will hold its seventy-fourth annual meeting in Columbus, May 6 to 8.

License Revoked.—The license of Dr. Levi W. Hunt, Toledo, is said to have been revoked by the state medical board, January 10. Dr. Hunt is said to have been charged with exaggerated advertising.

Legislative Measures for Health Reform.—On the recommendation of a commission to investigate the desirability of compulsory health insurance for Ohio a bill for the reorganization of the health service of the state will soon be presented in the legislature substituting for the present plan of village, township and city boards of health a system making the county or other larger district the local administrative unit. This plan is advocated by Governor Cox. The health insurance commission has also urged legislation providing for physical supervision of pupils in all Ohio schools.

For Public Health Nurses.—Under a bill recently passed as an emergency measure by the state legislature, city boards of health in Ohio will be empowered to employ public health nurses in such numbers as it may deem necessary, subject to the limitation that the city council may fix the maximum number. The bill has special importance in connection with the influenza epidemic. Its effectiveness during present and future epidemics will be limited somewhat, perhaps by the requirement that the nurses employed shall be registered nurses, a feature that has received some criticism in view of the difficulty of procuring nurses during the influenza epidemic, on account of shortage in the supply.

Personal.—Dr. Harry L. Rockwood, head of the tuberculosis sanatorium at Warrensville, is acting temporary health commissioner of Cleveland, succeeding Dr. Robert H. Bishop, Jr., who has resigned to accept a position as assistant director of the American Red Cross Antituberculosis Unit in Italy.——Dr. Louis G. Knowlton, Cleveland, was cut and bruised about the head in a collision between his automobile and an interurban car, near Berea.——Dr. Robert S. Barton, New Philadelphia, announces his retirement after twenty years of practice.——J. M. Ernst, Massillon, is said to have pleaded guilty to furnishing and selling morphin illegally, and to have been fined $50 and costs on each of two charges, January 7.——Dr. Henry W. Lehrer has succeeded Dr. Fred Schoepfle, Jr., as coroner of Erie County.——Dr. Addison D. Hobart, Toledo, has been held to the grand jury under bond of $2,500 on the charge of unlawfully dealing in narcotics.

PENNSYLVANIA

Personal.—Capt. J. Frederick Wagner, Bristol, has been made a major, having been cited for bravery in action in a battle north of L'Homme Mort, when he saved the life of a wounded American soldier at the risk of his own life.

Society Plans Permanent Home.—At the annual banquet of the Lehigh County Medical Society in Allentown, January 14, a campaign for funds for a permanent home for the society was inaugurated. It is reported that $5,000 were subscribed for the home on this occasion.

Election of Officers.—The Somerset County Medical Society met in Rockwood for the election of officers and the following were elected: president, Dr. George F. Speicher, Rockwood; vice president, Dr. Albert M. Lichty, Salisbury; treasurer, Dr. Carl W. Frantz, Confluence, and secretary, Dr. Henry C. McKinley, Meyersdale.

Held for Violation of Drug Act.—Dr. Charles A. Lanon, Brownsville, is reported to be held under $3,000 bail for alleged violation of the Harrison Narcotic Law.——Dr. John C. Bateson, Scranton, who pleaded nolle contendere to a charge of selling habit forming drugs to addicts, is said to have been fined $500, January 20.

Influenza at Chester.—Dr. Harry C. Donahoo, supervisor of the Chester Department of Health, issued a bulletin, January 25, urging the cooperation of the citizens in stopping the spread of influenza and asking all nurses in the city to register at the City Hall, that they may be called in an emergency. There are from 500 to 600 cases in the city.

Pennsylvania Medical Officers Reported Wounded.—Lieut. Sloan A. Brown, M. C., U. S. Army, Coraopolis, slightly; Lieut. Charles C. Ryan, M. C., U. S. Army, Republic, severely; Lieut. J. Armin Stackhouse, M. C., U. S. Army, Ambler, degree undetermined; Lieut. Lloyd E. Wurster, M. C., U. S. Army, Philadelphia, severely.——Dr. James P. H. Ruddy, Scranton, on duty with the American Expeditionary Forces in France, has been gassed.

Personal.—Elmer A. D. Clarke and Frank L. Martine, lieutenants, M. C., U. S. Army, Bethlehem, were each given a gold watch by the president of the Bethlehem Steel Company in appreciation of their services rendered the hospital of the Northampton house, during the recent epidemic of influenza.——Dr. W. W. Serrill, Kellettville, sustained a fracture of the right leg and other injuries by the overturning of his automobile near Kellettville, January 17. Dr. Serrill was pinned under his automobile for twenty-one hours before he was discovered.——Dr. Harvey M. Becker, Sunbury, associate in the eye, ear, nose and throat department of the George F. Giesinger Memorial Hospital, Danville, resigned, January 14.

Philadelphia

New Entrance Test for University.—Following the example of Columbia University, the University of Pennsylvania intends to institute psychology or intelligence tests to replace the old fashion admission examinations. The test will be similar to those applied to applicants for the Army Training Corps.

Personal.—Dr. John D. McLean, recently appointed assistant commissioner of health, assumed charge of the department, January 3, in the absence of Dr. Edward Martin.——Dr. Charles J. Hatfield succeeds Mr. E. T. Stotesbury as chairman of the Southeastern Pennsylvania Chapter of the American Red Cross.——Dr. George M. Lipeviski has been appointed outdoor physician, bureau of charities.

Epidemic Influenza.—In spite of efforts of the health officials, influenza continues in epidemic form. For the twenty-four hours ending at noon, January 25, 154 new cases had been reported by physicians as compared with 158 cases returned the previous day. During the week ending at noon, January 24, 792 cases of influenza and 267 cases of pneumonia were returned which was an increase of 175 in influenza and a decrease of twelve in pneumonia as compared with the reports for the preceding week.

WASHINGTON

State Board Election.—At a recent meeting of the state board of medical examiners of Washington, Dr. Andrew J. Nelson of Seattle was elected president; Dr. J. E. Hodgson, Spokane, vice president; Dr. Royal A. Gove, Tacoma, treasurer, and Dr. Conrad N. Suttner, Spokane, secretary. There is a vacancy on the board occasioned by the death, in December, of Dr. Elmer D. Olmstead, Spokane.

Personal.—Dr. John B. Anderson has been reelected health officer of Spokane for the ninth time.——Dr. Waldo Richardson, Seattle, was chief surgeon of the steamship, *Northern Pacific*, the Army transport which was recently aground off Fire Island, near New York.——Dr. Carrie A. Benefiel, Spokane, is ill with pneumonia.——Dr. Jerry E. VanderPool has resigned as city and county health officer of Walla Walla County.

WISCONSIN

Residence Given for Nurses' Home.—Mr. and Mrs. Henry Gund, LaCrosse, have given their home, representing a cost of $25,000, completely equipped and furnished as a nurses' home to the LaCrosse Hospital, to be known as the Eleanor Gund Nurses' Home.

Hospital News.—The Ashland General Hospital is enclosed, [illegible] and is now almost ready for equipment. [illegible] Hospital established in Garfield School, Washburn, during the influenza epidemic, has been closed.——Ashland, Bayfield, and Iron counties have appropriated $80,000 toward the Tri-County Tuberculosis Sanatorium to be built near Salmo.

New Plan of Health Administration.—Dr. John J. McGovern, Milwaukee, has worked out a plan for health administration in the state providing for a state health department to take the place of the present board of health with a state commissioner of health appointed by the governor and confirmed by the senate, and assistants to be selected from the civil service lists.

Elections.—At the annual meeting of the Milwaukee Medical Society, January 14, Dr. Hoyt E. Dearholt was elected president, Dr. David E. W. Wenstrand and Alfred L. Kastner were elected vice presidents, Dr. Oscar Lotz was elected secretary, and Dr. Joseph P. McMahon treasurer, all of Milwaukee.——At the annual meeting of the Milwaukee Hygienic Society, January 10, the following physicians were elected to office: president, Dr. George C. Ruhland; vice presidents, Drs. George A. Harlow and Philip F. Rogers, and secretary, Dr. John Vande Erve.——At the annual meeting of the Council of the State Medical Society of Wisconsin, held in Milwaukee, January 13, Dr. Edward Evans, LaCrosse, was elected chairman, Dr. L. Rock Sleyster, Waupun, secretary, and Dr. Sidney S. Hall, Ripon, treasurer. The council discussed a number of legislative measures concerning the more complete restriction of communicable diseases. One of these proposes to extend the period of compulsory quarantine for scarlet fever from three to five weeks.

Personal.—Dr. Calvin F. Hess, Madison, charged with malpractice in the performance of a mastoid operation, was cleared in the trial, January 15.——Dr. Frank H. Turner, Frederic, is reported to have pleaded guilty to sending various messages reporting the illness of relatives of soldiers in order that they may obtain furloughs, and to have been fined $1,000 by the Federal [illegible] January 11.——Dr. Ira F. Thompson, Eau Claire, has resigned after six months leave of absence from his position as deputy state health officer, and will enter at once on his new duties as organizer and director of the social hygiene department of the state.——Dr. Chester M. Echols was elected president, Dr. William F. Wegge, vice president, and Dr. Oscar Lotz, secretary, all of Milwaukee, of the medical staff of Emergency Hospital, Milwaukee, January 1.——Dr. William A. Prouty, Burlington, is reported to be seriously ill in a hospital at Jacksonville, Fla.——Dr. George F. Hilton, Sturgeon Bay, was seriously burned about the face and hands by a gas explosion in his furnace recently.

CANADA

Personal.—Major Brefney R. O'Reilly, M.D., Toronto, chief medical officer of the Royal Air Force in Canada, has been made a member of the Order of the British Empire.——Col. Herbert S. Birkett, Montreal, who recently returned overseas to take up a short course of duties with the Medical Service, has been appointed chief assistant to the director of medical services in the Canadian Army.——Dr. Henry Crassweller, Windsor, Ont., has returned after three years' service overseas. He was part of the time a prisoner in Cologne and Hanover, and for a time worked in a German hospital at Lecateau.——Major Samuel Harvey McCoy, Toronto, who has done excellent work in various capacities in England, is reported ill.

Board of Health on Influenza.—The board of health of Ontario, with a view of learning the experience of provincial and state medical officers of health in influenza, addressed the following letter of inquiry: "Does your province (or state) require the reporting, placarding, and quarantine of influenza, and, if so, do you consider placarding and quarantine of such, practicable?" Replies were received from nine officers of health in Canada and from forty-three state officers of health. Four of the provinces of Canada found placarding and quarantine were impracticable. One states that modified quarantine was working well; another, that the law was not well obeyed; a third, that it was almost impossible in rural places; a fourth, that there were many infractions but of good effect; a single officer declared it of good effect. Of the reports from the United States, twenty-nine out of forty-three, or 67 per cent., stated that placarding and quarantine in influenza were impracticable. Of the remainder of the replies nine report the law practicable, and five qualified their statements as follows: "seems to be of value"; "enforcement depends on local sentiment"; "law fairly well obeyed"; "beneficial"; "believe quarantine should be included." Out of fifty-two officers of health, state and provincial, nine frankly state, as a result of their experience, that placarding and quarantine are practicable, ten qualify their approval and thirty-three frankly state that these measures are impracticable.

GENERAL

Lieutenant-Colonel de Tarnowsky to Head Relief Work in Serbia.—Lieut.-Col. George de Tarnowsky, Chicago, has been given charge of medical relief work in Serbia with a staff of officers selected by him from the Medical Corps of the United States Army. Because of a shortage of physicians the relief work in Serbia will be of a medical character differing in this respect from similar work in Roumania.

Rural Hygiene.—Representatives of the state boards of health of Indiana, Michigan, Illinois, New York, Massachusetts, North Carolina, South Carolina, Minnesota, Kansas and Washington appeared before the committee on agriculture of the House of Representative in Washington, January 16, to present arguments in favor of the bill pending before the house, which contains provisions for a program to benefit rural health, involving an appropriation of $1,000,000.

Health Sunday.—Surg.-Gen. Rupert Blue, U. S. P. H. S., who appealed through a proclamation to clergymen of the country to set aside February 9 to preach sermons emphasizing the responsibility of the nation to protect the returned soldiers and sailors and communities at large, requesting also that there be inaugurated vigorous measures for the combating of venereal diseases, has announced that Health Sunday has been postponed from February 9 to 23, so as not to conflict with the Theodore Roosevelt memorial services, arranged for the former date.

Medical Relief in the Balkan States.—Major Roger D. Perkins, Cleveland, who has been in Paris for some time as medical liaison officer for the National Research Council, has joined the Balkan commission as director of public health and sanitation. He will make a tour of inspection through the Balkan states to advise with the various Balkan governments as to needs in this field. It will be remembered that Major Perkins accompanied the original Red Cross commission for relief in Roumania. A description of the work of the first commission appears in an article published in The Journal by Lieut.-Col. H. G. Wells and Major R. D. Perkins, March 16, 1918.

Commission to Roumania.—Lieut.-Col. H. Gideon Wells, Chicago, left the United States early in November as a member of the Balkan commission of the American Red Cross. The armistice and the cessation of hostilities made necessary a change in plans. He has now been detached from the position in connection with the commission to the Balkan states, and has been appointed commissioner representing the Red Cross in Roumania. He has organized a commission of sixty-eight persons to undertake general relief work instead of medical relief work alone, as there is a well developed medical profession in Roumania. The medical men of the party, aside from Lieutenant-Colonel Wells, are Lieut.-Col. Morley D. McNeal of Johns Hopkins, Baltimore, and Major J. Breckenridge Bayne, Washington, D. C. The latter was two years in Roumania, kept there practically as a prisoner during the German occupation, although allowed to do medical work among the Roumanian people. The work promises to be both interesting and practical because it is reported the Bolsheviki are making strong efforts to secure a foothold in Roumania, working from both Russia and Hungary. Abundant medical supplies will be taken to equip Roumanian physicians and hospitals.

FOREIGN

Spanish Hospital at Rome.—The two sons of a Spaniard, Sr. J. Taya, have given the Italian Red Cross $100,000 to found a fifty bed hospital at Rome, to be used for sick and wounded soldiers at first. Two years after the conclusion of peace, half the beds are to be reserved for the members of the Spanish colony in Italy.

Influenza in Pago Pago.—From Pago Pago, American Samoa, January 6, it was reported that communication between the island of American Samoa and Western Samoa was still cut off on account of the influenza epidemic. It was said that in Western Samoa one third of the population had succumbed to the disease.

Casualties in the Profession in Germany.—The *Nederlandsch Tijdschrift* cites some figures from Germany to the effect that the 1,200 casualty lists published by the German army and navy contained the names of 1,158 physicians reported as slightly wounded, 332 severely wounded, 663 killed, 422 as succumbing to disease, 212 taken prisoner, seventy-two missing and one killed by gas.

The University of Ghent.—Dr. Léon Fréderieq was professor of physiology at Liége and later at Ghent. He was imprisoned by the Germans because he refused to continue his courses in Flemish after the Germans had taken the city and were trying to remodel the university to be a Flemish institution. The government of Belgium has now appointed Professor Fréderieq lord rector of the university.

Personal.—Prof. H. Burger of Amsterdam has been elected corresponding member of the laryngologic section of the Royal Society of Medicine at London.——Prof. J. Rotgans of Amsterdam was given a sum of money, collected by subscription, on the recent twenty-fifth anniversity of his entering on the practice of medicine. He has donated the sum as the nucleus of a fund for cancer research in the Netherlands.

Italian Congress of Orthopedists.—The ninth annual meeting of the Italian Societá di Ortopedia, held at Milan in November, discussed the principles and practice of plastic motor surgery and expatiated on the importance of this kinematization of prostheses. The meeting adopted a resolution calling on the authorities to express in some way to G. Vanghetti, who was the originator of the idea of plastic motor operations and its apostle, the gratitude of science and of the Italian nation.

Netherlands Ambulance in Germany.—The Netherlands ambulance at Celle in Hanover continued for a long time after the signing of the armistice to have wounded soldiers sent there. The personnel has not met with any difficulties on account of the change of government. If possible, the *Nederlandsch Tijdschrift* remarks, they have been given greater appreciation. At the same time planned to return home in December as the cases are now becoming medical, while the ambulance is equipped only for surgical work.

Proposed Medical School at Khartoum.—The *British Medical Journal* states that the Gordon Memorial College, now in its seventeenth year at Khartoum, is doing fine work in spite of the European War cutting into its personnel. It is now proposed to found a medical school in connection as a memorial to Kitchener. About $45,000 has already been collected for the purpose in the Sudan, mainly by subscriptions from natives. Cerebrospinal meningitis was present in the Sudan last year. It is stated that owing to the difficulty of keeping guinea-pigs alive there, the Wassermann test could seldom be applied, but this difficulty has at last been overcome.

Deaths in the Profession Abroad.—Dr. **George Ogilvie**, on the staff of the Hospital for Epilepsy and Paralysis at London and writer on subjects connected with these specialties, F.R.C.P., senior physician to the French Hospital, aged 66. He had been decorated by the French, by the king of Italy and by the king of Portugal.——Dr. **Leonard G. Guthrie**, an eminent neurologist of London.—Dr. **O. Feijão**, professor of surgery at the University of Lisbon.—Dr. **S. Esquerdo**, director for forty years of the Carabanchel insane asylum, near Madrid, Spain.——Major **Miles Charles Cariston Seton**, Melbourne, Australia, M.B., C.M., 1900, University of Edinburgh, F.R.C.S., Edinburgh, 1908; who had served in South Africa in 1901; was shot and killed at the house of his cousin in England, January 13, by Lieut.-Col. Norman Cecil Rutherford, R. A. M. C. A verdict of willful murder against Colonel Rutherford was brought by the coroner's jury, January 24.

CORRECTION

Statistics of Baltimore.—We are informed by Dr. William H. Davis, chief statistician of the Bureau of the *Census*, relative to an item which apeared in The Journal, January 18, that the census department did not err in its statement as to the death rate of Baltimore, but that an error had occurred in the compilation of statistics in Baltimore. Dr. William T. Howard, Jr., assistant commissioner of health, has notified the department of the census that the error in compiling the statistics was made in the Baltimore Health Department.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Child Welfare Week at Buenos Aires.—Under the auspices of the Club de Madres a child welfare exhibition was opened at Buenos Aires in November. It is the second child welfare week that has been organized there.

Typhus at Santiago, Peru.—The *Revista de Beneficencia Publica* comments on the losses in the profession from the epidemic of typhus which is prevailing at present at Santiago and other cities of the republic. Dr. M. Guzman, intern at the Hospital de San Vicente, and Dr. C. Manterola, assistant in the Public Health Service, were among the victims in November, with four of the leading hospital nurses.

Lepers in Colombia.—The *Semana Medica* quotes from a recent official report at Bogotá, Colombia, to the effect that there is great room for improvement in the management of leprosy suspects. They are all conveyed to a detention laboratory where they are kept until the examiner comes, which is usually on Mondays. The diseased and the healthy are held here until the day of examination, as the authorities convey there, sometimes forcibly, any one who has been denounced as having leprosy. He may be taken by force from his home and without food or bed in which he can sleep, until the examiner finds it convenient to arrive. The appeal is made for a personal examination at the home, before sending the suspect to the detention laboratory for more thorough examination.

Compulsory Notification of Tuberculosis in Peru.—The Academia Nacional de Medicina at Lima has been discussing recently the feasibility of compulsory notification of tuberculosis. The general consensus of opinion seemed to be that a limited notification is practicable and useful, along the lines of the restricted compulsory declaration adopted in S. Paulo, Brazil. This provides for compulsory notification in all cases of deaths from this disease and when the sputum contains the specific bacilli and the subjects are in the following classes: (*a*) reside in neighboring house; (*b*) work in public offices, factories, and similar establishments; (*c*) are employed in eating houses, hotels, confectionery stores, cafés, groceries, etc.; (*d*) are employed as wetnurse, domestic servant, cook, laundress, scrubwoman; (*e*) are attending or teaching school. The academy voted in favor of the S. Paulo restricted compulsory notification. The discussion is given in full in the *Reforma Medica* of Lima.

BUENOS AIRES LETTER

Buenos Aires, Dec. 15, 1918.

Epidemics of Dysentery

The epidemics of dysentery at La Rioja and Catamarca have spread into the country. This renders much more difficult the campaign against this disease as the districts involved are poor with scanty resources.

Influenza in Paraguay

The influenza which spread from Buenos Aires to Paraguay acquired greater virulence there. The alarmed inhabitants believed that bubonic plague was responsible for the cases of death, but this assumption was disproved by Dr. Migone. Dr. Capurro, president of the Departamento de Higiene Argentino, has sent a commission to Paraguay to study the disease.

Entrance Examination for the Medical School

The notorious inadequacy of the preparation in physical and natural sciences has compelled the Facultad de Medicina to insist on an entrance examination. The diploma of the six years' course of studies at the Colegio Nacional Central will admit to the medical school without examination. Those completing the five year course will be obliged to undergo a written and an oral examination on botany, zoology, physics and chemistry.

Medical Botany to Be Dropped

The suppression of the course on medical botany seems to be imminent. The officials of the Facultad de Medicina are soon to decide the matter. In the meanwhile the first year students have decided not to enter for examination in this branch.

Medical School at Rosario

A new medical school is on the point of being inaugurated at Rosario. The building to house it is nearly completed, connected with the Hospital Centenario, and the courses are to be inaugurated in 1919.

Personal

Dr. B. A. Houssay, on the invitation of the Circulo Medico of Rosario, delivered an address before this society, November 20, on "Physiology of the Pituitary Body."

Dr. A. Bachsmann has been appointed chief of the section on entomology and medical zoology in the Departamento Nacional de Higiene.

PARIS LETTER

Paris, Dec. 19, 1918.

Disinfection of Wounds by Antiseptic Vapors

Dr. Lavenant of Paris recently reported to the Société de médecine de Paris a new method of disinfecting wounds by means of antiseptic vapors, first proposed by Dr. Le Faguays of La Roche-sur-Yon and which has yielded excellent results. The principle of the method is the disinfection of a wound by means of a current of gas charged with an antiseptic vapor. This current of gas may be ordinary air charged with an ether vapor to which a volatile antiseptic is added, such as phenol, camphor, oil of geranium. In some cases Le Faguays used air mixed with oxygen (half its volume) and saturated with ether vapor. A current of air is forced into a flask containing ether to which a volatile antiseptic has been added. Through the cork in the flask pass two tubes, one to admit the current of air, the other for the discharge of the medicated ether vapor. A Nelaton sound is passed down into the depths of the wound and is connected with the flask by a rubber tube. The antiseptic vapor is thus brought into contact with the wound surface. The treatment is continuous, day and night. Results are obtained quickly. The infected wound is usually cleaned up in twenty-four or forty-eight hours at the most, even when the infection has resisted the usual methods of treatment of infected wounds. The time required to produce similar results with other methods of treatment is about ten days. The expense of this treatment is slight and the patient is not being worn out and discommoded by having his bed saturated with irrigating fluid, as is the case when continuous flushing is employed.

Light Surgical Automobile Unit

At a recent meeting of the Société de chirurgie de Paris, Dr. Guillaume-Louis of Tours described a sort of flying surgical automobile unit intended to give service to wounded soldiers who are not transportable (such as cases of wounds of abdomen, thorax, head or extremities) during troop movements. The plan was first proposed by Professor Jeanbrau. The unit consists of two motor lorries convoying two two-wheeled carts and two small trucks. These light vehicles can travel over all roads without getting stuck. The lorries carry an operating room. On one of the two carts is placed the roentgenographic apparatus and on the other the sterilizing outfit. One of the small trucks contains the remainder of the surgical apparatus (instruments, laboratory equipment, etc.) and the material to form the closed-in archways between the various tents; the other truck carries the clothing of the personnel and can be used also to carry provisions for the group. This unit does not carry any tents or beds which could be used for hospital purposes, because these would add too much weight to the outfit, and it is preferable therefore, to depend on the front line for this hospitalization.

The Mentality of the Female Worker

At a recent meeting of the Académie des Sciences, Dr. Amar showed that sustained mental effort, concentration, in short, the will power of women workers is manifestly inferior to that of men workers. This is notably manifested in the yield or production resulting from the lesser occupations, but of a more or less mental nature, that is, requiring some "brain" work, such as adding columns of figures, copying letters, counting and wrapping pills or pins, sorting pens and verifying the good quality of the point. Amar has determined, with an electrical contrivance, that a sort of auditory or visual rhythm promotes the cerebral activity of women. He has reached the conclusion that the motor reactions of women always obey an auditory or visual rhythm. In the performance of all delicate work, work necessitating rapid movement, there exists for the ear as well as for the eye a proper cadence which lessens fatigue and increases production. Continuous labor, even with a perfect cadence, demands constant attention, with the result, so far as women are concerned, that respiration becomes modified and fatigue occurs earlier; even anemia and neurasthenia may result. All things being equal, the sensibilities of women are more affected by outside influences. Hence, women are emotional, full of sympathy—and likewise subject to antipathies—and these characteristics rule the mental processes of the woman worker.

Establishment of a Social Hygiene Dispensary

The general council of the department of the Seine has decided to establish a social hygiene and anti-tuberculosis dispensary to be known as the "Office publique d'hygiène sociale."

War Welfare Work

The "Secours de guerre" recently held a general meeting at which the secretary-general explained the activities of this group of workers, which are directed toward assisting the soldiers on furlough whose homes are in the invaded parts of France or who are without family, as also all refugees and repatriates. Since 1914, the Secours de guerre has hospitalized 1,697,884 refugees; during the time of the German drive on the Chemin des Dames, during twelve nights, there were sheltered, fed and clothed and sent inland and to the south 35,000 persons. This organization will henceforth also give assistance to civil prisoners and to soldiers mustered out of service in the devastated regions.

Nurse Receives Decoration of Legion of Honor

Mme. Marguerite Dislère, a nurse serving with the ambulance 9/10, has been made a chevalier of the Legion of Honor, with the following citation: "A nurse of the first order, of very high moral quality, accomplished in her profession and most zealous in her work. She rendered priceless service during the campaign in Morocco and during the earthquake catastrophe at Messina. At the front since Aug. 1, 1914, at Verdun, where she contracted typhoid caring for the sick, and where she was exposed to several bombardments; at Vadelincourt, at Ressons-sur-Matz; at Noyon, in the Somme, the Oise and the Vosges districts, she always gave proof, even under enemy fire, of the greatest courage and utmost contempt for danger, devoting herself with indefatigable energy to extending motherly care to the sick and wounded, furnishing an example of limitless devotion. Once wounded. Already cited twice in army orders."

Bread Ration for Pregnant Women

M. Raoul Méquillet, deputy, asked the minister of agriculture and food commissioner what the bread ration of pregnant and nursing women is at present. He received the following reply: Pregnant women, who are employed, are classed in the category T of the individual food card (daily bread ration of 500 gm.), as soon as they register themselves with the mayor and during a period of six months on condition that this registration is accompanied by a medical certificate setting forth their condition. Following the confinement, the classification in Class T will be continued for fifteen months, providing that the mother nurses the infant herself. Besides this, a daily bread ration of 100 gm. is allowed for the infant from the date of birth.

Personal

At the last meeting of the Académie de médecine, Prof. A. Laveran, a member of the academy since 1893, was elected vice president for 1919, automatically becoming president in 1920.

Deaths

Dr. Tanton, consulting surgeon of the Fourth Army, formerly a member of the faculty of l'Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce, died in his hospital at Mont-Frenet.——Dr. Vigouroux, physician in chief of the hospitals for the insane in the department of the Seine.

Marriages

Jay Melancthon Kilborne, Capt., M. C., U. S. Army, to Miss Lavisa Pinkley, both of Sioux City, Iowa, at Des Moines, Iowa, January 18.

Claude Allen Thompson, Major, M. C., U. S. Army, to Miss Alva Coulter, January 16, both of Muskogee, Okla.

George Asbury Conrey, Lieut., M. C., U. S. Army, to Miss Cornelia M. Keating, both of Chicago, January 18.

Addison Eugene Elliott, El Centro, Calif., to Dr. Frances Pullen Chapman of Oak Park, Ill., January 11.

Harry J. Arnold to Miss Martha Bean, both of Columbus, Neb., January 11.

Deaths

Thomas Francis Harrington ⊕ Boston; Harvard Medical School, 1888; aged 52; a specialist on internal medicine; a member of the American Association for the Study and Prevention of Tuberculosis, and American Association of Life Insurance Examiners; formerly visiting and later consulting physician to St. John's Hospital, Lowell, Mass.; deputy commissioner of the state board of labor and industry since 1915; for three years chairman of the board of health of Lowell; director of the school of hygiene in the Boston public schools from 1907 to 1915; instructor in the school for teachers at Harvard and the Massachusetts Institute of Technology; physician in chief of St. Elizabeth's Hospital; originator of "health days" and author of the History of Harvard Medical School; an internist of high repute; lieutenant-colonel, M. C., Mass. V. M.; died at his home in Boston, January 19, from ptomain poisoning.

John Henry Lowman ⊕ Cleveland; College of Physicians and Surgeons in the City of New York, 1877; aged 68; professor of clinical medicine and medical ethics in Western Reserve University, Cleveland; physician to Lakeside Hospital; consulting physician to Charity, City, Lutheran, and St. John's hospitals; director of Municipal Tuberculosis Dispensary; a member of the American Laryngological Association; who headed the first American Red Cross tuberculosis mission to Italy; died in New York City, January 23.

Urban S. Bird ⊕ **Lieut., M. C., U. S. Army,** Tampa, Fla.; Tulane University, New Orleans, 1895; aged 52; a specialist on diseases of the eye, ear, nose and throat; a member of the American Laryngological, Rhinological and Otological Society; for several terms city physician of Tampa; surgeon of U. S. Volunteers during the war with Spain, with service in Cuba; who was honorably discharged from the Army, December 5; died, about January 11.

Newcomb S. Smith, Rapid City, S. D.; College of Physicians and Surgeons, Keokuk, Iowa, 1864; aged 79; hospital steward on the Thirty-Second (Iowa) Volunteer Infantry, afterward assistant surgeon of the Thirty-Fifth (Iowa) Volunteer Infantry in the Civil War, and later a surgeon in the regular establishment with station at Fort Randall, Okla.; died in the Soldier's Home, Marshalltown, Iowa, January 9, from carcinoma of the throat.

William Bird Van Lennep, Philadelphia; Hahnemann Medical College, Philadelphia, 1880; aged 65; professor of surgery in his alma mater since 1884, and for several years dean of the faculty; senior surgeon and consulting surgeon to several hospitals in Philadelphia and Camden, N. J.; chief surgeon of the Hahnemann Hospital; a specialist in abdominal surgery; died at his home, January 9, from heart disease.

Thomas Kelley ⊕ New York City and Deal, N. J.; New York University, New York City, 1884; aged 55; a member of the New York Academy of Medicine; attending physician to St. Vincent's and St. Laurence hospitals, and the Catholic Institute for the Blind, and Seton Hospital, Spuyten Duyvil; died suddenly from cerebral hemorrhage in his automobile while making a professional call, January 17.

Gilbert Birdsall, North Brookfield, N. Y.; University of Buffalo, N. Y., 1863; aged 89; at one time a member of the Medical Society of the State of New York; hospital steward during the Civil War; for four years postmaster of Oneida, for sixteen years justice of the peace, and for fifteen years president of the board of education; died at his home, January 16, from acute indigestion.

Otto Louis Winter ⊕ **Lieut., M. C., U. S. Army,** St. Paul; University of Minnesota, Minneapolis, 1915; aged 30; a specialist in orthopedic surgery; whose last station was chief of the orthopedic service in the reconstruction hospital, Fort Snelling, Minn.; died at the home of his father in River Falls, Wis., January 2, from pneumonia following influenza.

Henry Virgil Bogue ⊕ **Asst. Surg. (j. g.), U. S. N. R. F.,** Los Angeles; Baltimore Medical College, 1909; aged 34; a specialist on diseases of the eye, ear, nose and throat; staff surgeon to the Los Angeles County Hospital; on duty at the Mare Island Naval Hospital, Vallejo, Calif.; died in that institution, January 9, from pneumonia following influenza.

William Sutherland Connery ⊕ Saginaw, Mich.; University of Michigan, Ann Arbor, 1889; aged 50; formerly president of the Saginaw County Medical Society; surgeon to the Saginaw and St. Mary's hospitals; formerly coroner of Saginaw County; a veteran of the war with Spain; died at his home, December 23, from cirrhosis of the liver.

Nathaniel Clark Morse ⊕ Eldora, Iowa; Cincinnati College of Medicine and Surgery, 1877; aged 62; district surgeon of the Chicago and Northwestern Railway; surgeon in chief of the Emergency Hospital; formerly president of the State Society of Railway Surgeons, and vice president of the Pan-American Medical Congress; a member of the Western Surgical Association; died at his home, January 18, from heart disease.

Bertram Hughey Landes, Logansport, Ind.; Indiana University, Bloomington and Indianapolis, 1911; aged 32; a member of the Indiana State Medical Association; a member of the staff of the Longcliff Asylum, Logansport; died in that institution, January 13, from pneumonia following influenza.

Allison R. Stealy ⊕ Charlotte, Mich.; Rush Medical College, 1886; aged 62; formerly president, secretary and treasurer of the Eaton County (Mich.) Medical Society; for several years health officer of Charlotte, and a member of the local board of education; died at his home, January 9.

Bradford Allen Booth ⊕ Pittsburgh; University of Pittsburgh, 1901; aged 40; chief medical inspector and diagnostician of the department of health of Pittsburgh, and visiting physician to the Municipal Hospital for Contagious Disease; died at his home, January 13, from heart disease.

Frank Walton Mitchell, Bakersfield, Calif.; College of Physicians and Surgeons in the City of New York, 1880; a member of the Medical Society of the State of California; died at his home, January 12, from cerebral hemorrhage.

William Hayden Campbell, Santa Monica, Calif.; Gross Medical College, Denver, 1890; aged 70; at one time a member of the Medical Society of the State of California, and Montana State Medical Association; died, January 8, at his home, near Los Angeles.

Samuel Solovei ⊕ **Lieut., M. C., U. S. Army,** Brooklyn; College of Physicians and Surgeons in the City of New York, 1917; aged 25; while on his second trip to France was taken ill on the steamer and died at a base hospital in Brest, October 15, from pneumonia.

Lewis Wesley Kitchens ⊕ **Lieut., M. C., U. S. Army,** Senatobia, Miss.; University of Tennessee, Nashville, 1914; aged 31; on duty with the American Expeditionary Forces in France; died in Calais, France, October 30, from pneumonia following influenza.

Horace Cortelyou Cory ⊕ Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1898; aged 52; a specialist in surgery; and a member of the staff of St. Michael's Hospital, Newark; died at Saratoga Springs, N. Y., January 15.

Nathaniel H. Saxman, Philadelphia; University of Pennsylvania, Philadelphia, 1890; aged 53; formerly a member of the Medical Society of the State of Pennsylvania; died in the Jewish Hospital, Philadelphia, January 8.

William Francis Rafferty ⊕ **Lieut., M. C., U. S. Army,** Rensselear, N. Y.; Albany (N. Y.) Medical College, 1911; aged 31; for two terms coroner of Rensselaer County; died suddenly from heart disease while making a professional call, January 15.

Abraham Sachs, San Antonio, Texas; Miami Medical College, Cincinnati, 1900; aged 46; a member of the State Medical Association of Texas; and a specialist on diseases of the eye, ear, nose and throat; died at his home, January 19.

Carl Adolph Breitling ⊕ **Lieut., M. C., U. S. Army,** Brooklyn; Northwestern University Medical School, 1913; aged 32; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died at Fort Oglethorpe, November 5, from bronchopneumonia.

Allen Lewis Borden, Gowanda, N. Y.; University of Michigan, Ann Arbor, 1896; aged 46; a member of the Buffalo Academy of Medicine, and health officer of Gowanda and Cattaraugus County; died at his home, January 10.

John E. Wade, Brooklyn; New York University, New York City, 1871; aged 71; a member of the Medical Society of the State of New York; died at his home, January 10.

James Harvey Cole ⊕ Council Bluffs, Iowa; University of Illinois, Chicago, 1892; aged 48; vice president of the Harle-Hass Drug Company, Council Bluffs; who was a patient in a private hospital in Des Moines, Iowa; died there, December 10, from a nervous breakdown.

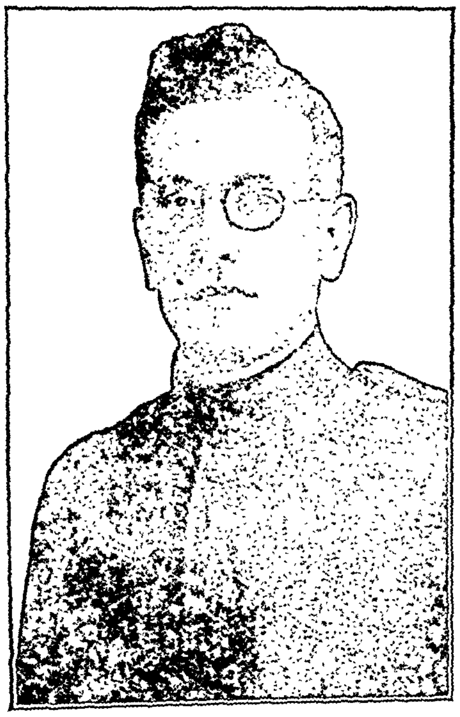
Charles Anthony Saxon, Clinton, S. C.; Jefferson Medical College, 1856; aged over 80; formerly a member of the South Carolina Medical Association; died at the home of his daughter-in-law in Laurens, S. C., January 5.

Demsey Franklin Smith, Whitesburg, Ky.; Hospital College of Medicine, Louisville, Ky., 1907; aged 42; a member of the Kentucky State Medical Association; died at his home, October 21, from pneumonia following influenza.

Glennie H. Rutledge, Afton, Okla.; American Medical College, St. Louis, 1907; aged 36; a member of the Oklahoma State Medical Association; died at his home, November 2, from pneumonia following influenza.

N. E. Palmer, Dundee, Minn. (license, Iowa, years of practice, 1886); aged 84; for several years a druggist at Kirkman and Botna, Iowa; died at the home of his son in Dundee, December 9.

Sidney Bennett Rolison, Hesperia, Mich.; University of Michigan, Ann Arbor, 1881; aged 70; a member of the Michigan State Medical Society; died at his home, January 11.



Died in the Service
IN FRANCE
Lieut. Sidney C. Vermilyea, M.C.
U S. Army, 1887-1918
(See The Journal, Jan. 18, p. 211)

Samuel S. Spicer, Grinnell, Iowa; Washington University, St. Louis, 1873; aged 66; at one time a member of the Iowa State Medical Society; died at his home, January 11, from heart disease.

John G. Halloway, Ottumwa, Iowa (license, Iowa, years of practice, 1887); aged 79; a veteran of the Civil War; also a clergyman; died at his home, January 4, from cerebral hemorrhage.

James F. White, Richview, Ill.; Medical College of Ohio, Cincinnati, 1874; aged 73; a member of the Illinois State Medical Society; died at his home, October 20, from influenza.

Edward T. Gauvreau, Superior, Wis. (license, Wisconsin, 1899); aged 75; a practitioner for forty-six years; for several years health officer of Superior; died at his home, January 13.

Phillipe Sharples Hall, Philadelphia; Hahnemann Medical College, Philadelphia, 1891; aged 52; formerly professor of pathology in his alma mater; died at his home, January 16.

Jacob Loy, Cedar Rapids, Iowa; Eclectic Medical Institute, Cincinnati, 1853; aged 91; a veteran of the Civil War; died at the home of his daughter in Cedar Rapids, January 9.

John C. O'Brien ⊕ Elmira, N. Y.; Western Reserve University, Cleveland, 1888; aged 68; a member of the Elmira Academy of Medicine; died at his home, about January 9.

John D. Masengill, Blountville, Tenn.; College of Physicians and Surgeons, Baltimore, 1874; aged 74; at one time a member of the Tennessee State Medical Association; a Confederate veteran; died at his home, January 9.

John Henry Reesor, Louisville, formerly Stithton, Ky.; Louisville (Ky.) Medical College, 1885; aged 60; a member of the Kentucky State Medical Association; died at his home, January 1, from pulmonary abscess.

William Patrick Wilson, Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1890; aged 61; a member of the Connecticut State Medical Society; died at his home, December 19, from heart disease.

William Henry Sheldon, Middlebury, Vt.; Bellevue Hospital Medical College, 1880; aged 63; also a druggist; died at his home, January 12, from disease of the throat.

William P. C. Schunzel, Chicago; Hahnemann Medical College, Chicago, 1917; aged 33; died at his home, January 20, from a ruptured aneurysm of the aorta.

Martin Vaughan, Hammond, Ind. (license, Indiana, 1898); aged 82; died in Augustana Hospital, Chicago, January 10, from uremia, after a surgical operation.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

B. IODINE AND B. OLEUM IODINE

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report on "B. Iodine" and "B. Oleum Iodine" together with the reply submitted by the manufacturer and a discussion thereon by the referee in charge of the preparations.

W. A. Puckner, Secretary.

Specimens of B. Iodine and B. Oleum Iodine (B. Iodine Chemical Company) and an advertising pamphlet were sent to the Council by John Bohlander, A.M., M.D., with the declaration:

> "Well knowing the value of Iodin in surgical operations and dressings, prompted me for the benefit of my fellow physicians as well as myself, and for Humanity's sake, to make Iodin my master-piece in chemistry.
>
> "After several years of diligent work in my private laboratory I succeeded in discovering a new product of Iodin—Nitrogen, hydrate of Iodin."

While "B. Iodine" is said to be nitrogen hydrate of iodin and "B. Oleum Iodine" a 5 per cent. solution thereof, the examination made by Prof. A. H. Clark of the University of Illinois, School of Pharmacy (working in the A. M. A. Chemical Laboratory), indicates that the first is a simple mixture of iodin and ammonium iodid, and the second a solution of iodin in liquid petrolatum. The Council adopted the report of the A. M. A. Chemical Laboratory (which appears below) and declared B. Iodine and B. Oleum Iodine inadmissible to New and Nonofficial Remedies because:

1. The composition is incorrectly declared. B. Iodine is not a newly discovered iodin compound, "Nitrogen Hydrate of Iodine," but a mixture of iodin and ammonium iodid. B. Oleum Iodine is not a 5 per cent. solution of B. Iodine as suggested by the statement on the label and in the advertising, but a solution of iodin in liquid petrolatum containing about 0.85 per cent. of iodin.

2. Since B. Iodine is a mixture of iodin and ammonium iodid, its solution in water will have the properties of other solutions of iodin made by the aid of iodid, such as a dilution of tincture of iodin or of compound solution of iodin (Lugol's solution). Hence, the therapeutic claim that B. Iodine "being of a colloidial nature has the advantage of being more readily absorbed and taken up by all cellular structure, thus getting a perfect cellular medication of Iodine," is unwarranted.

3. The names "B. Iodine" and "B. Oleum Iodine" are not descriptive of the pharmaceutical mixtures to which they are applied.

4. B. Iodine and B. Oleum Iodine are unessential modifications of established articles. B. Iodine has no advantage over tincture of iodin or compound solution of iodin. (As more convenient of transportation, the Medical Department of the U. S. Army supplies its field hospitals with a mixture of iodin and iodid ready for solution in water, either in tablet form or in powdered form in tubes.) Solutions of iodin in liquid petrolatum may be readily prepared (Reports Council Pharm. and Chem., 1917, p. 88).

[Contribution from the A. M. A. Chemical Laboratory]

B. IODINE PRODUCTS

A. H. Clark, Ph.G., B.S.

"B. Iodine" products are marketed by the B. Iodine Chemical Company, Cincinnati, Ohio; John Bohlander, A. M., M.D., is said to be the discoverer. They consist of "B. Iodine," "B. Oleum Iodine," and "B. Aqua Iodine." B. Iodine and B. Oleum Iodine were submitted to the Council.

In a circular submitted by the B. Iodine Chemical Company, B. Iodine is said to be "Nitrogen Hydrate of Iodin." It is claimed that "coming in contact with water, H_2O, a chemical change takes place forming Hydro Oxid of Iodin, the Nitrogen of the Nitrogen Hydrate of Iodin escaping, the balance taking up one of oxygen of the water. Its companion, the H_2, escaping at the same time with the Nitrogen then combining with the remainder of the water to form the solution of Hydrogen Oxid of Iodin; so you can readily see that you really have a pure water of Iodin, nothing but the H, the O and the I."

B. IODINE

According to the circular, B. Iodine is soluble in alcohol, chloroform, and ether. Also it:

> "Has odor, taste, melting and boiling point, same as regular Iodin, has a great affinity for water and will respond to all the tests of Iodin. Appears in a Bluish Black Granulated mass or powder. When heated in vaporating dish will throw off large purple volumes of Iodin leaving a slight white crystaline precipitate, which on continuous heating will entirely disappear. With careful manipulation you can get prismatic needle point like crystals, looking like spores of glass, these dissolving in water will yield pure Iodin coloring the water Iodin.
>
> "Pharmacologic, Therapeutical and Physiological Action: Same as Iodin, being of a colloidal nature has the advantage of being more readily absorbed and taken up by all cellular structure, thus getting a perfect cellular medication of Iodin."

A sample of B. Iodine, marked "Nitrogen Hydrate of Iodin" was submitted by the manufacturers and this sample was examined.

B. Iodine was found to be a granular powder, almost black with a purple cast. It has an odor of iodin and dissolves in water readily. It is also quite soluble in alcohol, but not entirely soluble in chloroform and ether. Ether quickly dissolves iodin from B. Iodine leaving a residue of a white granular substance. Chloroform acts the same as ether except that the iodin is dissolved out with some difficulty. On heating B. Iodine, vapors of iodin escape. If the heating is done on a water bath, a residue of a white granular substance, subsequently identified as ammonium iodid, remains. If heated in a bunsen flame, no residue remains. These tests all indicate that iodin is held in the form of a simple mixture.

Ammonia: B. Iodine when mixed with an excess of sodium hydroxid and warmed, evolves ammonia.

Iodine: 0.1567 gm. B. Iodine dissolved in water required 5.88 c.c. tenth-normal sodium thiosulphate solution indicating 48.28 per cent. iodin. 0.3721 gm. B. Iodine required 14.18 c.c. tenth-normal sodium thiosulphate solution indicating 48.37 per cent. iodin. The average is 48.33 per cent. iodin.

Ammonium Iodide: 0.3453 gm. of the residue after heating B. Iodine on a water bath until all iodin had volatilized was dissolved in water, acidulated with phosphoric acid, and hydrogen dioxid solution added. The liberated iodin was extracted with chloroform and titrated with tenth-normal sodium thiosulphate. 23.78 c.c. were required indicating 0.3447 gm., or 99.83 per cent., ammonium iodid.

A mixture of 5 gm. iodin and 5 gm. ammonium iodid has the properties of B. Iodine mentioned above.

The conclusion is that B. Iodine is essentially a mixture of iodin and ammonium iodid in equal parts, the two substances being finely powdered and intimately mixed.

B. OLEUM IODINE

The following regarding B. Oleum Iodine is quoted from the circular submitted:

> "B. OLEUM IODINE: Iodine soluble in mineral oil 5 and 10% for Nasel, Pharyngeal, Laryngeal, Bronchial, Rectal, etc., and all meucoid affections and abnormal conditions of the mucous membrane."

A sample of B. Oleum Iodine was submitted by the manufacturer and examined. The label on the bottle states that it is 5 per cent. B. Oleum Iodine in mineral oil. This sample has the characteristics of a solution of iodin in liquid petrolatum. It is oily and has the characteristic violet color.

Ammonia: B. Oleum Iodine, since it is presumed to be a solution of B. Iodine, was examined for ammonium compounds. A small quantity was mixed with an equal volume of strong sodium hydroxid solution and heated. No ammonia was evolved. A few crystals of ammonium chlorid were added to a little of B. Oleum Iodine and treated as above. Ammonia was readily detected.

Iodine: 5.255 gm. B. Oleum Iodine was dissolved in chloroform and placed in a separator. A solution of potassium iodid was added and the iodin titrated with tenth-normal sodium thiosulphate solution. It required 3.5 c.c. indicating 0.85 per cent. iodin.

The conclusion is that B. Oleum Iodine is a simple solution of iodin in liquid petrolatum to the extent of 0.85 per cent.

and not 5 per cent. as claimed. Furthermore, it is not a solution of B. Iodine since no ammonium compound is present.

The preceding report was sent to the B. Iodine Chemical Company. The following reply was received:

> Your letter of the 21st inst., received and contents noted and cannot quite agree with your report.
>
> Reasons why: NH_4I, a Nitro Hydrate Iodide; NH_4I_2, a Nitro Hydrate Iodate; and $NH_4I_2I_2$, Per Iodide, a molecular compound, which I claim, they all being of a NH group, so what can be the objection of Nitrogen Hydrate of Iodine? Of course when your chemist, with the aid of heat, drove off all the Iodine, he naturally brought it back to a NH_4I. There's where he gets the A.M. I claim a molecular compound.
>
> The Oil of Iodine I sent you by mistake was a 1 per cent. and not a 5 per cent. as marked. I claim it is made from the resublimed Iodine in mineral oil and not the B. Iodine. I claim a 5 per cent. has heretofore never been accomplished, so I therefore can claim something new.
>
> Tr. Iodine contains Alcohol and Potash as a base, the alcohol a dehydrater and Potash an escharotic, and all other soluble Iodines like the tincture have a metallic base. Mine has not. My iodine is compatable almost with all the salts, alkaloids, tannates, and even the metals. You can't say that for the tincture or the others. Now why should mine not be superior to others?
>
> Preparations as yet are not on the market and a few pamphlets were printed to meet with the requirements of your rulings and approval and shall be corrected if we only can agree on a proper name as you may suggest.
>
> Yours very truly,
>
> The B. Iodine Chemical Co.
> By John Bohlander, A.M., M.D.
>
> P. S. We are sending you under separate cover another sample of the Oil of Iodine which is a 5 per cent. solution, and allowing for deterioration will test at least four per cent.

The referee in charge of the preparations submitted the above letter to the Council with the following comments:

The principal statements in the letter are essentially erroneous or misleading: Mixtures or double salts of ammonium iodid and iodin were not discovered by Dr. Bohlander, and are nothing new. Watery solutions of iodin by means of an iodid have long been known and used in the form of Lugol's solution.

There is no evidence that ammonium iodid is less irritating than potassium iodid. On the contrary, ammonium salts are generally more irritating than the corresponding potassium salts. B. Iodine is not compatible with alkaloids, but behaves essentially like Lugol's solution. The A. M. A. Chemical Laboratory reports that the new sample of B. Oleum Iodine contains only 1.2 per cent. of free iodin, instead of the claimed amount. It is therefore somewhat weaker than the iodin petrolatum prepared by the A. M. A. Chemical Laboratory (*Reports Council Pharm. and Chem.*, 1917, p. 88).

However good Dr. Bohlander's intentions may be, the statements that he makes about his products are misleading or erroneous, and the products are ineligible for N. N. R.

Correspondence

"A REGISTRATION FEE FOR PHYSICIANS"

To the Editor:—Dr. Blair Kelly's protest (The Journal, Jan. 25, 1918, p. 298) against the proposition of an annual registration fee for physicians ascribes to me an attitude which is far removed from my thought. One of the responsibilities placed on the director of registration and education in Illinois is the enforcement of the medical practice act. This act represents the cumulative effort of years of work by members of the medical profession. It is an excellent law and is much in advance of any previous similar statute of Illinois. The civil administrative code, which established the department of registration and education, provides that the department of registration and education, provides that in all professional matters relating to medicine the officers of the department shall be advised by a committee of five physicians, men who are licensed to practice medicine and surgery in all their branches. Under the law no one can be admitted to practice medicine or debarred from it without the recommendation in writing by these guardians of the interests of the medical profession. This legal requirement is an absolute obstacle to any undue assumption of authority by the director. It was while working in hearty cooperation with this committee in an attempt to correct some recognized abuses that the desirability of an annual registration fee for physicians became apparent.

It ought to be clear that it is extremely difficult to administer a law relating to a certain profession without having any means at all of knowing what individuals are entitled to the privileges of that profession and what ones are not. So far as the department of registration and education is concerned, it has no motive and no desire as to medicine except to aid in the advancement of the interests of the profession in Illinois. It seeks only to build more firmly on the substantial foundations which have been laid through many years of efficient endeavor by those local, county, state and national organizations in medicine which have been working steadily toward the improvement of professional conditions.

So far as Dr. Kelly's suggestion of a possible financial motive in urging an annual registration fee is concerned, perhaps it is only necessary for me to say that under the law all funds received by the department must be paid into the state treasury every ten days, that no money is paid out by the treasurer except on a proper voucher approved by the director of the department, the director of finance and the governor, and that no positions of any kind are created except through the Civil Service organization. With these safeguards, no one should fear improper use of funds by a director.

Francis W. Shepardson, Springfield, Ill.
Director of Registration and Education.

ANNUAL REGISTRATION OF PHYSICIANS

To the Editor:—An editorial comment entitled "Annual Registration of Physicians, and a Danger" appeared in The Journal, Jan. 11, 1918, p. 122. If this matter could be brought to vote among the thousands of reputable physicians in our country, the law would never pass. It is a matter of common knowledge that sons of physicians only seldom study medicine, but are more apt to go into business or law. It is not unreasonable to believe that one cause of this is that fathers do not wish to subject their sons to certain needless and often petty restrictions imposed on members of the profession. It is also well recognized that the tendency of the times is for young men to enter commercial and mechanical fields rather than the study of medicine. True, certain educators may not deplore this fact, feeling that the profession has been overcrowded. There is no danger that it will be overcrowded in the future. The wisdom may be questioned of making laws which will bear on something like 145,000 earnest, conscientious members of a great profession, in order to locate a few rascals. It is well known that our profession does not command the respect of the people in our own country as it does in some other countries. It is not improbable that laws such as the one in question arouse doubt and suspicion in the minds of the people toward members of the profession.

Francis H. MacCarthy, M.D., Boston.

"THE TREATMENT OF AMEBIC DYSENTERY WITH IPECAC BY RECTUM"

To the Editor:—The Journal, Sept. 28, 1918, and more recently, Jan. 18, 1919, published the results and experiences of Dr. G. B. Lawson and Dr. J. Cecikas on the treatment of amebic dysentery with ipecac by rectum. If you will turn to the classical memoir on dysentery and its treatment by Dr. Woodward, in the "Medical History of the War of the Rebellion," Part II, pp. 832 et al., you will find an interesting and valuable contribution on the subject. Doubtless the fact that ipecacuanha or emetin so often fell into disrepute through reports by earlier authorities was due to our ignorance of the part played by the endameba in the production of amebic dysentery. Fortunately now our cases may be selected. Recently I had occasion to use myristica (nutmeg) in the treatment of amebic dysentery, which justifies a trial when emetin has failed, or in those asthenic cases which contraindicate its use. The report covering this investigation is in the hands of the publishers with the permission of the Surgeon-General of the Army. To those who are specially interested in the subject of dysentery, permit me to recommend reference to Woodward's memoir, a veritable mine of information. It will add corroboration to the "saw" of old, "There is nothing new under the sun." From observations in a number of our camps during the present war, I am of the opinion that amebic dysentery will be more common in our clinics than it has been in former years, not only among those who formed the American Expeditionary Forces, but also among those who got no farther than our Southern camps.

JOSEPH LEIDY, M.D., Philadelphia.

ANESTHETISTS IN HOSPITALS

To the Editor:—It has been brought to my attention, from various sources, that certain hospitals and surgeons employing nurses as anesthetists are paying these nurses on an average of $3 an anesthetic, while collecting from $10 to $15 from the patients for the anesthetic service rendered. In this connection I should appreciate receiving verified information regarding individual instances of this practice, for submission to those in a position to deal with the matter.

Incidentally, this practice has also involved the disbarment of licensed and qualified physicians from administering anesthetics in certain hospitals, the superintendents and surgeons of which are exploiting nurses as anesthetists. I should also like to have the detailed facts of such disbarment from all legally qualified practitioners who have been thus made the victims of a peculiar form of boycott.

F. H. MCMECHAN, M.D., Avon Lake, Ohio.
Secretary, American and Interstate Associations of Anesthetists.

RESULTS OF GENERAL ORDER 73 ON DEMOBILIZATION

To the Editor:—As the American Medical Association proved of great benefit to the Surgeon-General in the matter of obtaining physicians for the Medical Reserve Corps, it is probable that an objection from you concerning some of the practices now in force in the discharging of officers would have more weight than if from us as individuals. I refer to the changing of the status of the reserve officers by G. O. 73, W. D. 1918, and the practice of letting men out of the service without previous notice.

Those of us who entered the service prior to August were members of the Reserve Corps, commissioned to serve five years, on active service during a national emergency. At the termination of the emergency, we were to be ordered to our homes and there placed on an inactive basis. This gave us pay during the period of travel, and also the travel allowance of 7 cents a mile. But by the provisions of G. O. 73, the old Reserve was abolished. I wrote to the Surgeon-General some weeks ago, and recently had a reply to my question, in which it was stated that the members of the old Reserve were discharged, and that we were now all members of the National Army. As such we would be discharged where we might be serving, and would draw 4 cents a mile from the place of discharge. At the medical officers' training camp we were given to understand that we could not be discharged except by the President, and yet here was a wholesale slaughtering of commissions without any of us being asked so much as by your leave, again commissioned on an entirely different status, and all in the twinkling of an eye. In my own case, this order represents a loss to me of over $150, as I am now something over 3,000 miles from my home, and the difference in mileage plus the five days' pay that I lose, since discharges take effect before leaving one's last station, not on arrival at home, will be fully that much.

Furthermore, men are being discharged from this station, and I am told by friends elsewhere that this is not peculiar to this post, on a few minutes' *notice*. *This* means a further loss in pay, as usually one cannot pick up and leave without some little time to clear from property, etc.

I have personally talked to about a hundred medical officers. Is it any wonder that I have not yet been able to find one that will stay in the Reserve?

LIEUT., M. R. C.

[COMMENT.—We believe that our correspondent is correct in his statement, and that under General Order 73, which combined all branches of the service, officers of the Reserve Corps have had all the privileges of their former status as reserve officers removed. The Judge Advocate General has held that it is not possible to restore automatically reserve officers to the status they held before the issuing of General Order 73.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CUMULATIVE ACTION OF STRYCHNIN—DISPENSING OF PHARMACOPEIAL TINCTURES AND FLUIDEXTRACTS

To the Editor:—1. Owing to the cumulative action of strychnin, would it be safe for a person of medium weight to take one-thirtieth grain four times a day for a period of one year? 2. I dispense small quantities of tinctures and fluidextracts which I keep in my office and carry in my bag. I am not bonded. Am I violating the law; if so, how should I proceed to comply with it? Please do not print my name.

C. S. R.

ANSWER.—1. Authorities do not all agree that strychnin has a cumulative action. Some state that large doses of strychnin may lead to toxic symptoms through cumulation. According to Hatcher and Wilbert, no danger of serious poisoning is to be feared when the daily dosage is limited to 0.01 gm. (one-sixth grain) and the administration of the drug stopped on the appearance of increased sensitivity of the reflexes. While it might be safe to give one-thirtieth grain of strychnin four times a day for a period of one year, there would seem to be no reason for continuing the administration of the drug over such a long period. It would be better, perhaps, to give one-twentieth grain three or four times a day for from ten days to two weeks and then to discontinue for a week or two before repeating.

2. Physicians who dispense small quantities of pharmacopeial tinctures and fluidextracts need not be bonded.

"THE SURGICAL TREATMENT OF EMPYEMA BY A CLOSED METHOD"

To the Editor:—In THE JOURNAL, Dec. 21, 1918, p. 2062, is an article on the treatment of empyema by a new method. I think it is an old operation, done in the eighties as the "Bülau operation," and spoken of in an article by Immermann in the *Deutsche medizinische Wochenschrift* of 1887. This statement is made for the purpose of correctness; hence I would thank you if you could verify it.

G. WILLIAM POEHL, M.D., St. Louis.

ANSWER.—The article to which our correspondent refers was by Immermann, in the *Deutsche medizinische Wochenschrift* **13**:169, 1887. Immermann's method, which is said to be a modification of one he saw used in Basle (the name of the operator is not mentioned) and, again, later in Hamburg by Curschmann, consists in emptying and continuous aspiration of the fluid from the chest abscess. The method is like that described in THE JOURNAL by Mozingo in the first step, the making of the puncture and the insertion of a drainage tube; after that the two differ. Immermann does not use an aspirating syringe, nor does he inject any fluid into the abscess cavity. He merely provides for continuous drainage into a bottle containing salicylic acid or thymol solution, but, like Mozingo, insists on having an air-tight drainage tube so that the expanding lung will gradually obliterate the abscess cavity, and hence prevent the formation of adhesions.

Mortality Due to Snakes and Animals in India.—Vice Consul Charles M. Haywood at Calcutta (*Commerce Reports*) says that snake bite caused the death of 23,918 persons in British India in 1917, an increase of nearly 300 over the previous year. The number of snakes destroyed increased from 65,765 in 1916 to 73,968 in 1917, for the killing of which bounties to the amount of $1,045 were paid. Wild animals killed 2,176 persons in 1917, 102 less than in 1916. Tigers were responsible for 1,009 deaths, leopards for 339, wolves and bears for 280 and elephants and hyenas for 89. Of the 149 deaths caused by other animals, 89 were caused by pigs and 199 by crocodiles and alligators. During the year 19,476 wild animals were destroyed, of which 1,295 were tigers, 6,037 leopards, 2,784 bears and 2,147 wolves.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.

California: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

Connecticut: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven

Illinois: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Indiana: Indianapolis, Feb. 26-28. Sec., Dr. W. T. Gott, 84 State Capitol Bldg., Indianapolis.

Kansas: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.

Massachusetts: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.

Nebraska: Lincoln, Feb. 12. Sec., Dr. H. J. Lehnhoff, 514 First Natl. Bank Bldg., Lincoln.

New Hampshire: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

Vermont: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.

Wyoming: Moorcroft, Feb. 12-14. Sec., Dr. H. E. McCollum, Laramie.

Wyoming October Examination

Dr. H. E. McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, Oct. 10-12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, including 2 osteopaths, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago Hospital College of Medicine	(1918)	80.6, 80.8, 83.4, 88.6, 89.9
Loyola University	(1917)	82.9
National University of Arts and Sciences	(1915)	85
St. Louis College of Phys. and Surg.	(1917)	90.7

Nevada November Examination

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 4-6, 1918. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. Six candidates were licensed through reciprocity. *The following colleges were represented:*

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1916)	93.3
Hahnemann Medical College of the Pacific	(1918)	86, 89.8
University of Oregon	(1906)	94.4
FAILED		
University of Arkansas	(1914)	56.7

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Hahnemann Medical College and Hospital of Chicago	(1891)	Nebraska
Rush Medical College	(1875)	Illinois
State University of Iowa College of H. Med.	(1903)	Iowa
Albany Medical College	(1909)	Illinois
Bellevue Hospital Medical College	(1883)	Missouri
Medical College of Ohio	(1883)	Colorado

Massachusetts November Examination

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Nov. 13-15, 1918. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 32 candidates examined, 22, including 3 osteopaths, passed, and 10, including 3 osteopaths, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1917)	82.6
University of Colorado	(1911)	78.3
American Medical Missionary College	(1909)	75.6
Chicago Hospital College of Medicine	(1918)	75.4, 81.4
Hahnemann Med. Coll. and Hosp. of Chicago	(1918)	84.6
Medical School of Maine	(1876)	75.7
Baltimore Medical College	(1903)	75
Johns Hopkins University	(1918)	80.8
Boston University	(1882) 75.7; (1918)	78.5, 79.3
Tufts College Medical School	(1918)	78.5, 82
Syracuse University	(1918)	87.4
Jefferson Medical College	(1894)	75
Temple University	(1918)	77.7
University of Pennsylvania	(1918)	82.2
Woman's Med. Coll. of Penna.	(1906)	75
FAILED		
Chicago Hospital College of Medicine	(1918)	72.5
Baltimore Medical College	(1905)	69.7
College of Physicians and Surgeons, Boston	(1915)	68.2, 71.7
Middlesex College of Medicine and Surgery	(1918)	67.6, 70.3
Laval University	(1917)	71.8

Dr. Bowers also reports that 6 candidates were licensed at the special examinations given for emergency service. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1889)	80
State University of Iowa College of Homeo. Med.	(1918)	79.5
Baltimore Medical College	(1897)	80.4
Boston University	(1918)	81
Harvard University	(1918)	82.7
Tufts College Medical School	(1918)	77.3

Delaware December Examination

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the practical and written examination held at Wilmington, Dec. 10-12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
New York Homeo. Med. Coll. and Flower Hosp.	(1916)	90
Jefferson Medical College	(1918)	83.7
Temple University	(1918)	79.1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Maryland Medical College	(1909) Maine; (1913)	Penna.
Southern Homeopathic Medical College	(1902)	Maryland
Jefferson Medical College	(1892) (1909) Penna; (1915)	Virginia
University of Pennsylvania	(1910)	Penna.
Woman's Medical College of Pennsylvania	(1916)	New York

Rhode Island January Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the oral, practical and written examination held at Providence, Jan. 2-3, 1919. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Harvard University	(1917)	90.3, 91
Tufts College Medical School	(1917)	88.9
Hahnemann Med. Coll. of Philadelphia	(1881)	80
University of St. Joseph, Beirut	(1894)	81.2
FAILED		
College of Physicians and Surgeons, Boston	(1910)	74

New York Meeting

Mr. George M. Wiley, director, Examinations and Inspections Division, reports that 17 candidates were licensed by indorsement of credentials from April 15 to Dec. 10, 1918. Thirteen candidates were granted reregistration certificates. The following colleges were represented:

College	Year Grad.	Endorsement with
LICENSED BY INDORSEMENT		
Chicago Homeopathic Medical College	(1885)	Indiana
Baltimore Medical College	(1895)	Delaware
University Medical College of K. C.	(1904)	Indiana
Albany Medical College	(1914, 2)	New Jersey
Columbia University	(1916)	New Jersey
Long Island College Hospital	(1895)	New Jersey
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	Delaware
	(1916)	New Jersey
Eclectic Medical College	(1916)	Ohio
Western Reserve University	(1915)	Ohio
Jefferson Medical College	(1914)	Delaware
Medico-Chirurgical College of Philadelphia	(1898)	New Jersey
Woman's Medical College of Pennsylvania	(1890) (1902)	New Jersey
University College of Medicine	(1909)	Virginia
Trinity Medical College	(1896)	New Jersey

Mr. Wiley also reports that 6 candidates were licensed by indorsement by the Board of Regents under provisions of

Chapter 357, laws 1917. The following colleges were represented:

LICENSED BY INDORSEMENT

College	Year Grad.	No. Endorsed
Harvard University	(1888)	1
University of Minnesota	(1897)	1
Albany Medical College	(1894)	1
Jefferson Medical College	(1882)	1
Woman's Medical College of Pennsylvania	(1895)	1
Licentiate of the Apothecaries Hall of Dublin	(1887)	1

Book Notices

La Gangrène Gazeuse. Bactériologie, Reproduction Expérimentale, Sérothérapie. Par M. Weinberg, Chef de Laboratoire et P. Séguin, Boursier à l'Institut Pasteur. Paper. Price, 20 fr. Pp. 444, with 61 illustrations. Paris: Masson et Cie, 1918.

This monograph summarizes our knowledge of the bacteriology and nature of the infections now usually called gas gangrene, presenting what we knew before the war and the information derived from extensive investigations during the first two or three years of hostilities. The first part deals with the period before the war, and an effort is made to clear up so far as possible the relations of the micro-organisms described under various names as causing "emphysematous gangrene." It appears that the so-called gas bacillus described by Welch and Nuttall in 1892 under the name of *B. aerogenes-capsulatus* corresponds to the bacillus described independently in 1897 by Veillen and Zaber as *B. perpringens*, this name, which is used in France, being the first name of this bacillus to conform to the rules of binomial nomenclature. The second part describes the microbes, anaerobic as well as aerobic, of the gas infections studied by the authors as well as by others during the war. In the third part is discussed the genesis of these infections, the different forms, and their experimental production. The fourth part is concerned with the serum treatment of gas infections, a new and promising departure during the war, the final evaluation of which must be awaited. The illustrations are superior, and the bibliography is complete to October, 1917. This book is unquestionably the most valuable in its field, and will always be a great landmark in the study of gas infections.

The Newer Knowledge of Nutrition. The Use of Food for the Preservation of Vitality and Health. By E. V. McCollum, School of Hygiene and Public Health, The Johns Hopkins University. Cloth. Price, $1.50. Pp. 199, with illustrations. New York: The Macmillan Company, 1918.

In this small volume the author tells the result of nearly 3,000 feeding experiments, and correlates the results with clinical facts. As the name indicates, the book deals with the newer knowledge of nutrition, which till now has been written in technical language and scattered through technical journals. The author here digests the literature, and presents the latest opinions in nontechnical, simple language that reads as easy as a novel. This he is well able to do because he is master of the subject.

At this time, when chemistry is in the saddle, the unbiased attitude of the author, who is a chemist, is plainly stated (page 54):

> Without in the least attempting disparagement of the value of the services of the chemist in the study of the problems of nutrition, it may truthfully be said that both his ordinary, and his unusual and most searching methods for the analysis of foodstuffs fail to throw any great amount of light on the value of a food or a mixture of foods for inducing growth.

In his investigations, therefore, he used the biologic method for the analysis of a foodstuff, and in this presentation he discusses it. He considers especially growth, experimental scurvy, the vegetarian diet, foods of animal origin, diseases referable to faulty diet or deficiency diseases, the nursing mother as a factor of safety in the nutrition of the suckling, and the planning of the diet.

Funk (*Lancet* 2:1266, 1911), through the vitamin hypothesis, attempted to account for the diseases scurvy, rickets, pellagra, beriberi, etc., as being each due to the lack of a specific chemical substance, vitamin, in the diet. McCollum criticizes this term and others, showing why they are inappropriate, and supplants the term with the indefinite terms fat-soluble A and water-soluble B. These terms, however, are not final, since they are used to mean only that the deficient substance in one case is soluble in fat, and is usually found in butter, and in the other that it is soluble in water. This indefiniteness is vividly illustrated in the final page (114) of the chapter on deficiency diseases. Here he says:

> Pellagra, scurvy and rickets do not belong to the same category with beriberi. . . . There do not exist "curative" substances for these diseases. . . . The faults . . . have been shown to reside in maladjustments of and unsatisfactory quantitative relationships among the now well recognized constituent of the normal diet. They are to be sought in the quality and quantity of the protein, the character and amount of the inorganic constituents, the physical properties of the residues which are left after digestion, and form the feces from which the intestine must rid itself.

This maladjustment, he states, can be remedied by the more liberal use of milk, butter, cream, eggs and leafly vegetables which furnish fat-soluble A; but occasionally diets are encountered that contain too little of the water-soluble B. This in reality is not new to most clinicians, but is the old remedy in a different vehicle. However, the book contains much that is new, is full of suggestions, and is a distinct addition to preventive medicine.

The Wassermann Test. By Charles F. Craig, A.M., M.D., Lieutenant-Colonel, Medical Corps, United States Army. Published with authority of the Surgeon-General, United States Army. Cloth. Price, $3. Pp. 239, with illustrations. St. Louis: C. V. Mosby Company, 1918.

This book is published because the author was urged to record his experience with the Wassermann test in the diagnosis and treatment of syphilis through many years. The writer's modification of the Wassermann method, which has been used very extensively and which seems to be quite as simple and as accurate as any other method, is described fully and clearly. At the same time the most important observations in regard to the test in the literature are considered. The author emphasizes that much of the misunderstanding and confusion among physicians in regard to the value and the limitations of the Wassermann test are due largely to the fact that the test frequently is delegated to poorly trained or careless assistants, the results consequently often being erroneus and unsatisfactory. It is, of course, essential, if reliable results are to be obtained, that the test always be made by competent serologists. The last paragraph in the book may be quoted in full to show the author's opinion of the Wassermann test of the cerebrospinal fluid:

> In no case can it be stated that the syphilitic patient has been given the best that it is possible for medical science to give him, either in the way of diagnosis or treatment, if the thorough examination of the cerebrospinal fluid has been omitted; and this examination should become as much of a routine in the diagnosis and treatment of syphilis as is the Wassermann test on the blood serum.

This book is a standard authority in its field, and may be accepted with complete confidence for guidance and instruction in carrying out the Wassermann test.

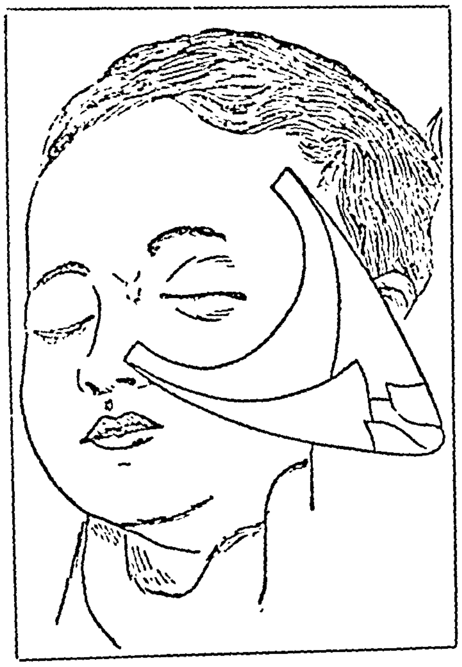
The Spleen and Anæmia. Experimental and Clinical Studies. By Richard Mills Pearce, M.D., Sc.D., Professor of Research Medicine, with the assistance of Edward Bell Krumbhaar, M.D., Ph.D., Assistant Professor of Research Medicine, and Charles Harrison Frazier, M.D., Sc.D., Professor of Clinical Surgery, University of Pennsylvania. Cloth. Price, $5. Pp. 419, with 16 illustrations. Philadelphia: J. B. Lippincott Company, 1918.

This book is divided into three parts. The first and largest consists of ten chapters by R. M. Pearce, on the effects of splenectomy. The relation of the spleen to blood destruction and regeneration, the changes in the bone marrow, the liver and the lymph nodes after splenectomy, and the effects of splenectomy on metabolism as observed in the dog as well as in man are discussed on the basis of experimental studies previously reported from time to time in medical journals and now largely rewritten. The second part, by E. B. Krumbhaar, contains clinical observations on the various forms of splenomegaly accompanied by anemia, and their diagnosis and treatment. The third part, by Charles H. Frazier, discusses the surgical treatment of diseases of the spleen, and brings out the new points in regard to splenectomy learned from its extended use in recent years. It should be noted that injuries, infections and tumors of the spleen are not considered, and that the relation of the spleen to the leukocytes is discussed only incidentally, the emphasis being on the relation of the spleen to the red cells. The thorough consideration of splenectomy as a method of studying the relation of the spleen to blood destruction and regeneration and of treatment of human diseases of the spleen accompanied by anemia, as well as of the classification, diagnosis and treatment of the noninfectious splenomegalies accompanied with blood destruction makes this a highly valuable book, of interest to all physicians in any way concerned about the diseases of the spleen.

Social Medicine, Medical Economics and Miscellany

To Protect the Clothing in Irrigating the Eye

This illustration shows how a piece of adhesive plaster can be used to form a funnel to drain away fluid used in irrigating the eye, without letting it run down to the ear and neck. The plaster is cut out to fit around the eye, and the lower corners are brought up to form the funnel. This little device has been used for several years by Dr. F. Lopez, who describes it in the *Anales de la Sociedad Oftalmologica Mexicana*, **1**:101, 1918. This new journal, by the way, publishes on separate, loose cards summaries in English and French of its original articles, ready for filing. The address is Donato Guerra 11, Mexico, D. F.



Air Conditioning in the Home

In the *Ohio Public Health Journal* for November, 1918, Emery R. Hayhurst details experiments in his own home to determine whether the average sized residence could be air conditioned, especially in regard to maintaining a proper humidity (from 40 to 50 per cent.), comfortable temperature and healthful atmosphere during the closed-up season of the year, and in a manner to be practical and feasible for the small householder. This house was heated by hot air furnace and contained several grates burning natural gas. Among the observations and deductions of the experimenter were the following: The comfortable living room atmosphere may be defined as one in which there is a barely perceptible circulation of air, yet without draft; temperature not depressingly high nor uncomfortably low, with heat more or less evenly diffused throughout the rooms; a degree of humidity which is neither high enough to be depressing nor low (dry) enough to be irritating; the absence of noxious gases, as those escaping from stoves or grates and, obviously, dust, smoke or disagreeable odors. Standardizing the foregoing, the air should move at a velocity of about 1 foot a second; its movement should be varied in direction; it need not be over 68 F., provided the degree of saturation with water vapor amounts to form 40 to 50 per cent. In air conditioning a residence, the chief problems to be considered and controlled are: movement of the air to overcome stagnation and stratification (indirect heating, as by hot air furnace, or perhaps the use, at times, of an electric fan accomplishes this); prevention or control of heat loss through direct filtration of heated air outward and ingress of cold air into the building (taking place rapidly about doors, windows and baseboards, floors, and especially chimney flue openings); direct conduction of heat through walls, window panes and floors; and loss of water vapor which may have been added to the air for bringing up humidity requirements. The question therefore reduces itself practically to one of heat and humidity control, part of which is accomplished by correct building construction, and the remainder by the usual type of hot air furnace and a humidifying device. When outside temperatures mount above the freezing point, 32 F., artificial humidification is not necessary; with the persistence of outside temperature below freezing, indirect heating methods, such as the hot air furnace, produce excessive dryness, which should be corrected. Heating of rooms by naked natural gas flames in grates results in sufficient atmospheric humidity (from 40 to 60 per cent.). With this degree of relative humidity "room comfort" is attained with temperatures as low as 60 F., though this probably does not mean any less consumption of fuel, as the extra amount is used up in evaporating the moisture which comes in contact with the heated air and the furnace box. It is, however, more healthful and comfortable, since it does away with the necessity of excessive heating (from 70 to 80 F.) in order to feel comfortable on cold days.

Revision of the Nomenclature of Diseases

The official "Nomenclature of Diseases" is drawn up by a committee appointed by the Royal College of Physicians, and is subject to decennial revision. The first edition was begun in 1859 and completed in 1869; subsequent editions have been published in 1884, 1896 and 1906. The fifth edition, which was begun in 1912, has just been published and shows many changes corresponding to the progress of medical science. For the first time three new groups of diseases are recognized: disease of the blood, diseases of the ductless or endocrine glands, and diseases due to disorders of nutrition or of metabolism. The triple column of Latin, French and German equivalents which formed a prominent feature in previous editions has been omitted. The aim of the compilers of the first edition in 1869 was "to prepare a nomenclature suitable to England and to all countries where the English language is in common use and to lay the foundations for a nomenclature of diseases in any language extant on earth." With this object they supplied for each name the corresponding Latin term, which is the language of ancient science and probably the fittest language for a nomenclature common to all the world: and also the equivalent term in the three modern languages that are the richest in medical learning and literature—French, German and Italian. The Italian version was omitted in the third edition, but the Latin, French and German equivalents were retained in the third and fourth editions. The decision to omit the foreign equivalents in the present edition was made on the grounds that the ambition of the compilers of the first edition to be founders of an international nomenclature has not been realized; it is impossible to guarantee the correctness of the French and German equivalents except by international agreement, and the insertion of the French and German names of every disease is beyond the scope of a British nomenclature of diseases. The omission of the Latin and Greek equivalents requires a more detailed explanation. It is pointed out that the Latin equivalents are very often translations of English phrases, and that many of the names of diseases in common use are framed on a Latin or Greek basis, or are hybrid combinations sanctioned by time. Such names, therefore, need not be expressed in separate Latin columns. In this volume Latin and Greek names have been incorporated in the text either as synonyms of English names or as main headings in any case in which the Latin or Greek name is more frequently used than the English equivalent. The committee express the hope that with the present simplification, the nomenclature of diseases will be generally used by all physicians for the registration of diseases, and the return of causes of death, since uniformity of terms is of the greatest importance for all statistical purposes.

Medicolegal

Hospital Records as Evidence in Criminal Cases

(Bolden v. State (Tenn.), 203 S. W. R. 755)

The Supreme Court of Tennessee, in reversing a judgment of conviction of defendant Bolden of the murder of one George Norman, says that the only proof claimed by the state to have been made of the death of Norman was the testimony of the superintendent of a hospital to which Norman had been taken after he was shot by the defendant. The superintendent testified in substance that he produced and filed the record of George Norman as a patient in the hospital, showing by its recitals that the latter was admitted on the day of the shooting and died there six days later, the diagnosis being gunshot wound of the peritoneum. The witness knew nothing about George Norman, except what the records of the hospital showed. The witness did not make the entries in the record, but they were made at his direction, and under his control and supervision, and it was part of his duty as superintendent to see that they were correctly made. The witness did not know George Norman; had never seen him. He did not know, of his own knowledge, whether Norman was dead or not. It was insisted by the state that this was sufficient proof of the death of Norman to sustain the conviction, but the supreme court does not think so. Hospital records of the condition of patients are held to be competent evidence as entries by a third and disinterested person made in the routine of the business of the hospital. But such entries are not to be received in a criminal case, if the enterer can be produced at the trial to testify in person as to the matters he has recorded. If, however, his memory as to the facts recorded has failed, he may testify that the entries were correctly made by him at the time, and then the entries may be admitted. In this case the superintendent of the hospital did not even testify that the record was correctly kept by his subordinates, and the court is of the opinion that the testimony was incompetent. The proof offered in this case did not stand on a higher plane than hearsay. This being the only proof of the death of the person proved to have been shot by the defendant, there must be a reversal of the judgment and a remanding of the case for a new trial.

Allows Use of Saccharin in Beverages

(People v. Excelsior Bottling Works, Inc. (N. Y.), 171 N. Y. Supp. 733)

The Supreme Court of New York, Appellate Division, First Department, takes a different view of the use of saccharin as a sweetener from that of the Court of Special Sessions of the City of New York, and reverses the latter's judgment of conviction of the defendant for having in its possession and offering for sale as a beverage bottled strawberry soda, which it was alleged was adulterated, in that saccharin, a deleterious ingredient, had been used as a sweetener or substitute for sugar, injuriously affecting the quality of the soda water, in violation of the sanitary code and a resolution of the board of health. The court says that, so far as appeared, the question has not been before the federal courts for decision with respect to the use of saccharin in food products. The decision of the secretaries of agriculture, commerce and labor, and of the treasury, based on the report of the referee board of consulting experts, was intended, this court thinks, to prevent the use of saccharin as a sweetener for food products proper, such as canned vegetables, preserves and candy. It is quite evident that the secretaries were not considering the use of saccharin in beverages.

There was a label on the bottle containing printed matter, including the statement: "Sweetened with Sugar and One One-Hundredth of One per cent. of Saccharin (Benzo-Sulphinide)." The uncontroverted evidence showed that the use of soda water as a beverage containing this quantity of saccharin could not possibly be injurious to health, and that there is greater danger of injury to health from consuming too much sugar than from the consumption of saccharin in such a percentage. It also appeared that the use of sugar in any form is injurious to people suffering from diabetes and some other diseases, while the use of saccharin by them to flavor food and render it palatable is prescribed by medical authorities. The only possible theory on which such use of saccharin could be prohibited is to prevent deception, by leading purchasers to think that the food products had been sweetened by sugar, which contains a food value, and not by saccharin, which has no food value. There was in this case no evidence of deception, and the label was designed to prevent deception. Soda water is not a natural food product, but is a compound of food products, and the court is of the opinion that such use of saccharin comes within the proviso contained in Section 68 of the Sanitary Code relating to a mixture of compounds by their own distinctive name, and that the label complied with the requirements thereof. The resolution of the board of health was not enacted in form as an amendment of the sanitary code, and it could not be given effect as such. The only authority of the board to adopt resolutions with respect to the sanitary code was to carry the provisions thereof into effect. Moreover, since saccharin is not injurious to health, its use may be regulated, but cannot be prohibited, under the exercise of the police power, and therefore the court thinks the resolution was void.

If a standard of purity or with respect to the ingredients to be used in making soda water had been prescribed by the legislature, or by legislative authority, then it might well be argued that no other ingredients could lawfully be used in making it. It is perfectly obvious that, entirely aside from the question of disease or medical advice, some people may desire, especially in hot weather, a cooling beverage that contains no food value, or that has been sweetened to render it palatable by the use of saccharin, instead of by the use of sugar, and there is therefore no occasion or authority for prohibiting such use of saccharin. It follows that the conviction should be reversed, and the information dismissed.

Care Required of Injured Person

(Flint v. Connecticut Hassam Paving Company (Conn.), 103 Atl. R. 840)

The Supreme Court of Errors of Connecticut, in affirming a judgment in favor of the plaintiff for damages for personal injuries alleged to have been caused by the defendant's negligence, says that the plaintiff on the trial had offered evidence that she had sustained injuries which were permanent, that as soon as possible after the infliction of her injury she had procured medical treatment from a physician and surgeon in good standing and long experience, and that she had followed his advice and taken his treatment. The defendant offered evidence that the plaintiff did not act with reasonable care, endeavoring to cure herself of her injuries, but that, had she received proper treatment, she would have recovered much sooner. It was contended by the defendant that the trial court should have left to the jury as a question of fact whether the plaintiff had exercised ordinary care in her efforts to effect a cure. What the jury was instructed was that:

> In arriving at the amount of your verdict, you should make no deductions on any theory that she might have been cured earlier by different treatment; for, if you find that she in good faith employed such medical aid as she thought suitable and endeavored to cure herself, it makes no difference whether she used the best methods in such endeavor to cure herself or not. She should not suffer anything, or any loss, even if you come to the conclusion that any other kind of medical treatment might have effected a cure.

This instruction was erroneous, but harmless. It was the duty of the plaintiff to use ordinary care to cure and restore herself, and reckless or negligent conduct on her part, if thereby her injuries were enhanced, could not be charged to the defendant. But it did not appear that the defendant requested the court to give the jury any instructions on this question, nor did it appear what act of omission or commission on the part of the plaintiff, by which her cure was retarded, was imprudent or negligent; on the contrary, it did appear that she did do all that careful and prudent conduct required in consulting a physician of good standing and following his advice as to treatment. It would seem that the jury could not have been misled by the instruction given, although as an abstract proposition it is the law that it was not a question of good faith on the part of the plaintiff, but one of ordinary care. But the trial court correctly informed the jury "that no diminution of damages should be made, if some other kind of medical treatment might have effected a cure"—that is, always on the condition that the plaintiff exercised ordinary care in selecting a physician and the treatment she was to follow.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics, York, Pa.

January, 1919, **79**, No. 1

*Recognition and Management of Labor Injuries. A. J. Skeel.—p. 1.
*Vertigo of Menopause. K. I. Sanes.—p. 7.
*Intestinal Actinomycosis. J. W. Keefe.—p. 13.
Problems of Ureteral Surgery in Gynecology. G. Van A. Brown. —p. 19.
Accidental Removal of Intestines Through Vaginal Vault. E. J. Ill. —p. 29.
Prevention of Recurrence of Symptoms Following Operations for Gall-Stones. J. H. Jacobson.—p. 32.
Operations for Stigmata of Decline. R. T. Morris.—p. 38.
*Clinical, Pathological, and Sociological Observations on Ninety Interned Venereal Patients. J. E. Davis.—p. 40.
Painless Childbirth and Safe Conduct of Labor. H. Schwarz.—p. 46.
Pathology of Chronic Metritis and Chronic Subinvolution. O. H. Schwarz.—p. 63.
Effect of Anterior Wall and Suspension Operations on Floor of Female Bladder. W. A. Jewett.—p. 94.
Comparative Study of Mechanism of Labor. W. Pfeiffer.—p. 99.

The articles by Drs. Skeel, Sanes and Davis were abstracted in The Journal, Oct. 19, 1918, pp. 1339 and 1340. Dr. Keefe's article was abstracted in The Journal, Oct. 25, 1918, p. 1434.

Archives of Diagnosis, New York

October, 1918, **11**, No. 2

Epidemic Catarrhal Fever; La Grippe; Influenza. W. L. Somerset.—p. 110.

Boston Medical and Surgical Journal

Jan. 16, 1919, **180**, No. 3

Work of an American School for Rehabilitation of Disabled. D. C. McMurtrie.—p. 59.
Influenza: Is It a Hazard to be Healthy? D. B. Armstrong.—p. 65.
*Study of One Thousand Diphtheria Deaths. B. W. Carey.—p. 67.
Thrombosis of Lateral Sinus. G. A. Moore.—p. 71.

Study of One Thousand Diphtheria Deaths.—A statistical study was made by Carey for the Massachusetts Department of Health of 1,000 deaths due to diphtheria. Twenty per cent. of the deaths occurred in children less than 1 year of age; 25 per cent. between 1 and 3 years; 62 per cent. of all deaths occured before the age of 5. Laryngeal diphtheria was far more prevalent than other forms; pharyngeal was next in order of frequency and the nasal form last. Carey believes that if the laryngeal cases were diagnosed earlier, the mortality from these cases would be lower. He urges that a culture should be taken in all conditions where there is a possibility, even though remote, for diphtheria to be suspected.

Twenty-three and one-tenth per cent. of the patients were sick a week, 4.2 per cent. were sick from one to two weeks, and 4.2 per cent. were ill several days without medical attention. Eleven and eight-tenths per cent. were found moribund on visitation by the physician. Here again is evidence for the necessity of awakening people, through educational methods, to their responsibility to their children. Sudden death occurred in 5.2 per cent. of the cases. In many instances lack of nursing care was the responsible factor. Another factor in the sudden death group appeared to be the repeated attempts at intubation where, for some reason, the tube was either not properly introduced or else expelled.

The dosage of antitoxin was extremely varied in amount, the number of doses given, and the interval between dosage. In twenty-nine instances, it was found that less than 3,000 units were administered. The amount increased from this to a point where a young child of 3 years received 225,000 units. The usual doses, however, seem to have been from 6,000 to 9,000 units. The number of doses varied from one to several on consecutive days and in a few instances it was administered every four hours until death occurred. In one instance 80,000 units were given in this manner. In no instance was antitoxin given intravenously. Carey urges that particular stress be laid in the instruction of medical students on the necessity of properly administering antitoxin, thus avoiding the chances for anaphylactic reaction and impressing on them the need of early and sufficient treatment.

Canadian Medical Association Journal, Toronto

January, 1919, **9**, No. 1

War Activities in Medicine and Surgery. A. Primrose.—p. 1.
*Liquid-Tight Closure and Treatment of Infected Wounds. W. H. Taylor, and N. B. Taylor.—p. 11.
Pensionability of Disabled Soldier. J. L. Biggar.—p. 28.
Medical Services of Department of Soldiers' Civil Re-Establishment. F. McKelvey Bell.—p. 34.
Influenza Epidemic at Bramshott in September-October, 1918. C. E. C. Cole.—p. 41.
Work of Stationary Hospital in Field. S. H. McKee.—p. 49.
*Auto-Serum Treatment of Chorea. A. Brown, G. E. Smith and G. Phillips.—p. 52.
Trinitrotoluene Poisoning. H. Odland.—p. 63.

Liquid-Tight Closure and Treatment of Infected Wounds.—The Taylors have devised a water tight dressing by means of which one is enabled alternately to fill and evacuate a deep wound; to fill it even to its remote recesses with irrigating fluid under positive pressure and to empty it again under negative pressure. These alternating pressures set up an ebb and flow current within the cavity of the wound and its ramifications, with the result that, with each cycle, the consistency of the pus becomes rapidly reduced. A greater and greater dilution of pus is effected at each flushing of the wound—a dilution progressing geometrically—until finally the effluent grows clear and the lining granulations clean. The authors have found that thirty-six hours is the average time required to cleanse a wound of pus. On removal of the appliance at the end of this period, clear fluid alone can be expressed from the wound and its sidetracks. The suppurative processes have not been brought to a standstill, but pus is carried away as quickly as it is formed; the solution is being brought into contact with the granulations lining the walls of all parts of the wound cavity, and bacteria, not embedded in the tissues, are rendered inert through dilution.

Autoserum Treatment of Chorea.—The treatment employed by the authors consisted of the injection into the lumbar cord region of about 20 c.c. of blood serum obtained from 50 c.c. of blood withdrawn from the median basilic vein. Of twenty-three patients so treated, 77 per cent. were cured, 19 per cent. improved and one unimproved, this one having refused further treatment on account of a severe reaction. There has been no recurrence so far. In all instances, except six in which tonsils were removed, there were observed what were apparently foci of infection, which were attended to after the course of treatment. Of the twenty-three cases, seventeen were of a mild degree and five were severe. In four instances the duration of the disease was over a year, while the remainder showed symptoms on an average of six and a half weeks' standing. The average number of injections given were three; several patients were given only one injection, while in one instance five injections were administered before a cure was affected. The average amount of serum injected was 17 c.c. Nineteen patients were cured in three weeks and four were cured within one week. All the severe cases required more than one injection. In practically every instance there had been previous medical treatment given with the usual indifferent and unsatisfactory results. In most cases there was a mild reaction in the form of vomiting and an occasional rise of temperature; on only one occasion was the reaction of such a nature as to prevent the return of the patient to the clinic and that owing to parental objection. The withdrawal of an amount of spinal fluid equal to that of serum injected did not appear to be necessary.

Journal of Experimental Medicine, Baltimore

Jan. 1, 1919, **29**, No. 1

*Effect of Dry Heat on Blood Count in Animals. J. B. Murphy and E. Sturm.—p. 1.
*Source of Lymphocytosis Induced by Means of Heat. W. Nakahara. —p. 17.

- *Lymphocytes in Natural and Induced Resistance to Transplanted Cancer. J. B. Murphy and E. Sturm.—p. 25.
- *Effect of Stimulation of Lymphocytes on Rate of Growth of Spontaneous Tumors in Mice. J. B. Murphy and E. Sturm.—p. 31.
- *Rôle of Lymphoid Tissue in Resistance to Experimental Tuberculosis in Mice. J. B. Murphy and E. Sturm.—p. 35.
- *Effect of Exposure to Sun on Circulating Lymphocytes in Man. H. D. Taylor.—p. 41.
- *Studies on Roentgen-Ray Effects. Destructive Action on Blood Cells. H. D. Taylor, W. D. Witherbee and J. B. Murphy.—p. 53.
- *Id. Stimulative Action on Lymphocytes. M. M. Thomas, H. D. Taylor and W. D. Witherbee.—p. 75.
- *Id. Changes in Lymphoid Organs After Small Doses of Roentgen Rays. W. Nakahara.—p. 83.
- *Id. Direct Action of Roentgen Rays on Transplantable Cancers of Mice. E. Hill, J. J. Morton and W. D. Witherbee.—p. 89.
- *Blood Counts in Experimental Poliomyelitis in Monkey. H. D. Taylor.—p. 97.
- *Effects of Large Doses of Roentgen Rays on Susceptibility of Monkey to Experimental Poliomyelitis. H. L. Amoss, H. D. Taylor and W. D. Witherbee.—p. 115.
- *Action of Chlorinated Antiseptics on Blood Clot. H. D. Taylor and M. G. Stebbins.—p. 125.
- Tropistic Action of Blood Vessels on Migration of Chromatophores. H. D. Taylor.—p. 133.

Effect of Dry Heat on Blood Count.—Animals subjected to dry heat for a short period show a sharp fall in the total white blood count, both the polymorphonuclear leukocytes, and the lymphocytes taking part in the fall. Following this there is a slow recovery on the part of the polymorphonuclear leukocytes, which generally require several weeks to regain their normal number. The lymphocytes rise rapidly after the initial fall and continue to rise for 2 or 3 weeks. This increase often amounts to a gain of over 200 to 300 per cent. above the normal count for the animal. These observations were made on mice, rats and guinea-pigs. The circulating lymphocytes during the more active stage of stimulation after heating show numerous examples of amitotic division. The source of the heat in these experiments was an electric bulb of frosted glass, giving the maximum heat of the amount of light generated. The method of application varied with the size of the animal and its ability to stand the higher temperatures.

Lymphocytosis Induced by Means of Heat.—A striking number of mitotic figures have been observed in the germinal center of the spleen and lymph glands during the regeneration of the cellular elements of these organs after the destructive effect of heat. This enhanced cell proliferation is interpreted by Nakahara as more than compensating for the degenerated cells, because of the subsequent enlargement of the organs. It has also been pointed out that the characteristic decrease in the number of lymphocytes immediately after the heat treatment is always accompanied by an extensive cell degeneration in spleen and lymph glands at the corresponding period. On this basis it seems evident that the pronounced lymphocytosis induced by means of heat treatment of the animal is due, at least in part, to the enhanced proliferative activity of germinal centers in the spleen and lymph glands, reacting to the destructive effect of heat on lymphoid cells.

Lymphocytes in Resistance to Transplanted Cancer.—The experiments made by Murphy and Sturm, carried out on over 100 mice, show that animals whose lymphocytes have been stimulated by dry heat have a much higher resistance to transplanted cancer than control mice inoculated with the same tumor. The general health of animals subjected to this treatment did not seem in the least affected. This difference in resistance was manifest both when the tumor inoculated gave a relatively low percentage of takes, and when the tumor was highly virulent and gave a high percentage of takes.

Lymphocytosis and Growth of Spontaneous Tumors in Mice.—Spontaneous cancers were removed from a series of mice by operation. The animals were then subjected to an exposure to dry heat at a temperature ranging from 55 to 63 C. for five minutes. Immediately afterwards a graft of the original tumor was returned. The mice so treated exhibited a marked increase in their resistance to the growth of the cancer graft, over 59 per cent. remaining entirely free from a return of the cancer. In a control series in which no treatment was given 96 per cent. of the animals showed a return of the cancer.

Lymphoid Tissue and Resistance to Experimental Tuberculosis in Mice.—Mice with high lymphocyte counts and increased activity of the lymphoid tissue induced by one exposure to intense dry heat exhibit a marked increase in the resistance to large doses of bovine tubercle bacilli as compared with that shown by control animals given a similar inoculation. This resistance, judged by the time of survival after inoculation, is increased from two to threefold.

Effect on Lymphocytes of Exposure to Sun.—Chronic solar dermatitis was accompanied, in twenty-five of thirty-eight individuals studied, by Taylor by an appreciable increase, percentage and absolute, in the number of circulating lymphocytes. In eight there was a definite decrease and in five no appreciable change after prolonged exposure to the rays of the summer sun. Of the thirteen subjects with no increase in blood lymphocytes, six failed to tan, three were so dark originally that to determine an increase was impossible, and five had an extremely high lymphocyte count at the first count. Blood counts on white persons living in the Philippines indicate that the blood lymphocytes are likewise increased after a prolonged period of residence in the tropical zone. Because of the parallelism between the tanning and the blood changes it seems probable that the lymphocytosis observed in the majority of instances, which is similar to the response of the blood of animals to small doses of the roentgen rays, is due to the effects of the ultra-violet rays contained in the solar spectrum.

Roentgen-Ray Effects on Blood Cells.—The authors found that roentgen rays in large doses affect the lymphocytes before any of the other circulating cells. There is a sharp fall in the total number of circulating lymphocytes, which is complete forty-eight hours after roentgen-ray treatment. Following the immediate decrease in the circulating lymphocytes there is a primary rise, followed by another fall, which in turn is followed by a permanent rise of these cells to normal. The polymorphonuclear neutrophilic leukocytes, when affected at all, increase in number immediately after the administration of the roentgen rays and then tend to decrease below their normal level. This decrease is followed by a return to normal many days before the lymphocytes reach their original level. The other cells of the blood follow the neutrophilic curve.

Roentgen-Ray Effects on Lymphocytes.—Blood counts were made on nine rabbits after an exposure to roentgen rays of a seven-eighths inch spark-gap, milliamperage 25, distance from the target 8 inches, and time of exposure twenty minutes. In seven of the nine animals there resulted an increase of the circulating lymphocytes. In five of these the increase was marked and in two others definite but not striking. Of the two animals which showed no stimulation one showed marked fluctuation of counts both before and after roentgen rays and the other little or no change. The higher penetrating dose (6 inch spark-gap, milliamperage 5, distance from the target 10 inches, times twenty-six minutes and fifty-seven seconds) given to two animals produced no appreciable stimulation.

Roentgen-Ray Effects on Lymphoid Tissue.—The small dose of roentgen rays (spark-gap seven-eighths inch, milliamperage 25, ditance 8 inches, time twenty minutes) applied to the rabbit has no appreciable destructive effect on the lymphoid tissue. Indications of stimulation of the lymphoid tissue appear immediately after the treatment, become most pronounced in two (in lymph glands) to four (in the spleen) days, and persist, in a slight degree, up to the fourteenth day. These facts suggest that the lymphocytosis induced by the small dose of roentgen rays is due to a primary stimulative effect on the lymphoid tissue of the animal.

Roentgen-Ray Effects on Tumor Cells.—The direct action of roentgen rays in more powerful doses than can be applied therapeutically the authors found to be somewhat injurious to tumor cells, but by no means destroying them. In fact, the cancer cells establish a resistance to the roentgen rays after repeated doses. This harmonizes with the experience of clinicians who have succeeded in checking cancerous growths for some time but reach a point where no response can be effected by repeated doses. The rays of low penetration are apparently more harmful to tumor cells than the more penetrating rays.

Blood Counts in Experimental Poliomyelitis.—Blood counts were made on six series of monkeys before and at various intervals after the injection of active poliomyelitic virus. From the data thus obtained the variations in the circulating white cells have been followed in the several stages of the disease (*a*) before injection, (*b*) during the incubation period, (*c*) during the acute stage, including the stage of prostration, and (*d*) during recovery. Averages of 121 counts on forty normal monkeys are recorded. Immediately following the injection of the virus the relative and actual numbers of lymphocytes are slightly diminished. In many cases the curve continues sharply downward. In others from the fourth to the sixth day there is an actual increase for a brief period to a point somewhat in excess of the original count. With the onset of symptoms a lymphocytic crisis takes place. The curve then continues slightly downward, while the polymorphonuclear neutrophilic leukocytes are relatively and actually increased to approximately the same time. During the stage of prostration the curve of the polymorphonuclear neutrophilic leukocytes returns to almost normal, while the lymphocytic curve continues slightly downward. With recovery the lymphocytes slowly return to normal after several weeks. There is no evidence of lymphocytic stimulation after recovery. Eosinophilic, basophilic, large mononuclear, and transitional leukocytes follow the depressions and stimulations exhibited by the neutrophilic cells of the same series. These results are consistent with the observations of Peabody, Draper and Dochez on human cases. The increase in the total number of circulating lymphocytes after the lymphocytic crisis is coincident with the passing of the acute stage. Additional evidence is presented to indicate that Smillie produced atypical but definite poliomyelitis in the monkey with cultivated virus.

Effects of Roentgen Rays on Poliomyelitis.—In two series of the experiments here recorded the monkeys which had been repeatedly exposed to roentgen rays responded with typical acute poliomyelitis to an intracerebral inoculation of poliomyelitic virus filtrate, whereas, the normal control receiving the same dose showed no symptoms. In another series the roentgen-rayed animal came down with typical poliomyelitis after inoculation with three fourths of the dose which was not infective for the control. It has been demonstrated that roentgen rays diminished both the number of circulating lymphocytes and the resistance of the animal to the weak poliomyelitic virus. Whether the lowered resistance of the animals as the result of the treatment with roentgen rays is due to the reduction of circulating lymphocytes in each of the roentgen-rayed monkeys is not determined in these experiments. However, the great reduction in lymphocytes in human cases and in monkeys during the acute stage of experimental poliomyelitis and the gradual return of the cells to their former numbers during recovery strongly suggest a definite relation between these cells and one factor of resistance in poliomyelitis. On the other hand, the reduction in resistance by roentgen rays, while definite, is not sufficiently great to warrant the conclusion that we are dealing with major factors governing infection or noninfection. Another experiment in this paper deals with the survival of a subinfective dose of the virus in the normal monkey brain. A monkey receiving the subinfective dose of the virus was exposed to roentgen rays at twenty-eight days, another at fifteen days after injection, but neither animal showed symptoms of poliomyelitis. It is concluded that within this period the virus did not remain unchanged in the normal monkey brain. An attempt to reduce the immunity in a monkey acquired by an attack of experimental poliomyelitis was unsuccessful.

Action of Chlorinated Antiseptics.—This work demonstrates that the chlorinated antiseptics have no power to penetrate blood clots and destroy bacteria therein contained. Correspondingly, blod clots may protect virulent bacteria for a long period of time and the organisms properly planted will be able to proliferate in a normal manner. The authors used neutral solution of chlorinated soda, chloramine-T solution, calcium and sodium chlorid and eusol.

Kentucky Medical Journal, Bowling Green

January, 1919, **17**, No. 1

Rabies. S. Graves.—p. 6.
Id. Report of Case. B. Vaughan.—p. 15.
Fistula in Ano. W. E. Reynolds.—p. 18.
Present Medical Fees Inadequate. D. E. McClure.—p. 21.
Four Cases of Fracture of Femur Treated by Open Operation. W. B. Owen.—p. 22.
Obstetrical Cases. E. Speidel.—p. 24.
Electrical Accidents. J. H. Hendren.—p. 26.
Joint Lesions Following Focal Infections in Children. J. D. Trawick.—p. 30.
Case of Cholecystitis. A. W. Nickell.—p. 32.
Carcinoma of Penis. J. R. Wathen.—p. 33.
Sarcoma of Ovary. M. Casper.—p. 35.
Use of Esophagoscope and Bronchoscope. G. C. Hall.—p. 36.
Diaphragmatic Hernia. Report of Case. C. Weidner, Jr., and C. Weidner, Sr.—p. 42.
Workingman's Hand. The Frequency of Its Injury and the Cause of Bad Results. C. G. Forsee.—p. 44.

Medical Record, New York

Jan. 18, 1919, **95**, No. 3

Experimental Evidence as to Immunity From Tuberculous Infection. G. E. Bushnell.—p. 89.
Splenic Reflexes of Abrams in Treatment of Syphilis. A. Abrams.—p. 96.
*Breathing Gymnastics for Marching Soldier. N. J. P. Van Baggen.—p. 101.
Pneumonia, Acute Empyema, Acute Appendicitis, Pneumococcus Peritonitis. Their Differential Diagnosis. M. Behrend.—p. 102.
Chlorin, Dichloramine-T, and Catgut. R. F. Ofrias.—p. 104.

Breathing Gymnastics for Marching Soldier.—Van Baggen advocates breathing gymnastics for the marching soldier for the purpose of developing the chest, strengthening the muscles of the thorax, and fortifying action on the pulsation of the heart because they are evidently of great advantage for those who are obliged to exert their physical capacities to the utmost. Moreover, control over the breath, which means the regulation of inspiration and expiration, is most valuable while walking, marching, running, and, in general, while performing any bodily exercise. It has been found also that the exercises have an excellent influence on the correct erect bearing of the men.

Mental Hygiene, Concord

October, 1918, **2**, No. 4

War Neurosis and Military Training. W. H. R. Rivers.—p. 513.
Registration of Feebleminded. G. A. Hastings.—p. 534.
Psychiatric Aims in Field of Criminology. B. Glueck.—p. 546.
First Ten Years of National Committee for Mental Hygiene; Its Future. L. F. Barker.—p. 557.
Training School of Psychiatric Social Work at Smith College. W. A. Neilson.—p. 583.
A Lay Reaction to Psychiatry. E. E. Southard.—p. 584.
Course in Social Psychiatry. E. R. Spaulding.—p. 586.
Scientific Basis for Training Social Workers. F. S. Chapin.—p. 590.
Emergency Course in a New Branch of Social Work. M. C. Jarrett.—p. 593.
Vagrancy. A. T. Baker.—p. 595.
Suggestions in Nomenclature of Feeblemindedness. E. E. Southard.—p. 603.
Valid Uses of Psychology in Rehabilitation of War Victims. D. S. Hill.—p. 611.
Personality Studies and Personal Equation of Aviator. S. Paton, W. Maclake, and A. S. Hamilton.—p. 629.

Michigan State Medical Society Journal, Grand Rapids

January, 1919, **18**, No. 1

Roentgenography to Determine Size of Heart. A. W. Crane.—p. 1.
Ethics. R. H. Spencer.—p. 2.
Six Hundred and Thirty-Eight Herniotomies. W. T. Dodge.—p. 6.
Peace and War in Human Organism. F. McD. Harkin.—p. 8.
Field of Local Anesthesia in a War Hospital. L. J. Hirschman.—p. 12.
Case of Congenital Ptosis. H. L. Begle.—p. 13.
Epidemiology and Treatment of Amebic Dysentery. Report of Two Cases. G. R. Herrmann.—p. 15.
*Operation for Prolapse of Rectum. H. deB. Barss.—p. 19.
Production of Chronic Nephritis Through Feeding High Protein Diets. L. H. Newburgh.—p. 21.

Operation for Prolapse of Rectum.—The method used by Barss, but not original with him, consists in making small puncture incisions about half an inch from the anal margin—one anteriorly, one posteriorly, and one on each side. Through these small cuts scissors are introduced and blunt dissection conducted beneath the skin so as to connect each puncture, and thus make a complete subcutaneous ring around the anus. Through the anterior puncture silver wire (gage 19) is threaded on each side, the two ends appearing through the posterior cut. The wire is then drawn up and twisted so as to contract the anal opening to a size which will just admit freely the index finger. The ends are twisted, the excess wire cut and the ends tucked beneath the skin. The punctures are so small that sutures are not needed. The wire is completely buried. A sterile pad is the only dressing applied.

Minnesota Medicine, St. Paul

January, 1919, **2**, No. 1

Treatment of Peptic Ulcer by Gastro-Enterostomy. C. H. Mayo.—p. 1.
Operation for Senile Cataract. F. Allport.—p. 5.
*Paraffin Treatment of Burns. A. N. Collins.—p. 8.
One Hundred Per Cent Recoveries in Cerebro-Spinal Meningitis. H. W. Hill.—p. 12.
Electrocardiograph in Diagnosis of Heart Diseases. O. S. Hansen.—p. 17.
Iritis. J. H. James.—p. 18.
Relation of Labyrinth Disturbances to General Symptomatology. H. A. Beaudoux.—p. 22.

Paraffin Treatment of Burns.—Abstracted in THE JOURNAL, Sept. 21, 1918, p. 1002.

New Jersey Medical Society Journal, Orange

January, 1919, **16**, No. 1

Laboratory Findings: Their Proper Interpretation. O. Lowy.—p. 1.
Meningitis. H. I. Goldstein.—p. 3.
Needed Reforms in Public Health Work. M. N. Baker.—p. 4.

New York Medical Journal

Jan. 18, 1919, **109**, No. 3

Mouth Infection. O. T. Osborne.—p. 89.
Influenza. A. H. Wright.—p. 91.
Alcoholism and Phantasy Life in Tolstoi's Drama "Redemption." S. E. Jelliffe and L. Brink.—p. 92.
Development of Consciousness. H. J. Mulford.—p. 97.
*Peanut Bronchitis. E. J. Patterson.—p. 101.
*Pulmonary Tuberculosis and Insanity. I. J. Sands.—p. 103.
Borderline Gastric Disease. M. Kahn.—p. 105.
Gunshot Wounds of Bladder. C. G. Cumston.—p. 109.

Peanut Bronchitis.—Cases are cited by Patterson to illustrate the characteristic train of symptoms which follow the inspiration of fragments of peanut into the respiratory tract and which continue until the fragments have been removed bronchoscopically or evacuated spontaneously and the pus which follows its sojourn in the bronchus has been evacuated bronchoscopically.

Pulmonary Tuberculosis and Insanity.—Among 962 necropsies performed at the Manhattan State Hospital, in 131 cases, or 13.61 per cent., the lesions of active pulmonary tuberculosis were found. In 107 cases, or in 11.12 per cent., a clinical diagnosis of pulmonary tuberculosis was ventured, while in eighty-one out of the 107 cases, or 76.35 per cent., the diagnosis of pulmonary tuberculosis was corroborated at postmortem examination and in twenty-six of the 107 cases, or 23.65 per cent., no corroborative evidence of tuberculosis was found at necropsy. Of the 131 cases of active pulmonary tuberculosis found at necropsy, eight-one, or 61.83 per cent., were correctly diagnosed antemortem, and fifty, or 38.17 per cent., were not clinically suspected as tuberculous. Sands says that psychoses among tuberculous patients are infrequent and are, usually, either of the infective toxic type of reaction, or shown by the manic depressive behavior. Psychoneurosis, especially of the neurasthenic and of the spychasthenic types, is quite prevalent among tuberculous patients. The general therapeutic principles employed in the treatment of tuberculosis are equally applicable in the insane as in the mentally sound patients afflicted with the disease.

Ohio State Medical Journal, Columbus

Jan. 1, 1919, **15**, No. 1

Group Examination for Intelligence Rating in Army. T. H. Haines.—p. 6.
Chronic Prostatitis. A. W. Nelson.—p. 8.
*Cancer of Skin. C. F. Bowen.—p. 11.
Repair of Old Lacerations of Genitalia During Lying-In-Period. J. L. Bubis.—p. 14.
Relation of Throat and Mouth Conditions to General System. W. W. Pennell—p. 15.

Cure of Cancer of the Skin.—Bowen believes that every case of cancer of the skin can be cured, and perhaps prevented, but whether or not any individual case is cured, depends on how soon a correct diagnosis is made, on how soon proper treatment is begun and on the thoroughness of the treatment. Small lesions can be removed by caustics, fulgeration, roentgen ray, radium or operation. The larger lesions can be removed by fulgeration, roentgen ray, surgery or a combination of these methods. No single method will suit all cases, but with the proper selection of methods at our disposal Bowen says "nearly" every case of skin-cancer can be cured permanently.

Oklahoma State Medical Association Journal, Muskogee

January, 1919, **12**, No. 1

Accessory Sinuses of Nose. R. O. Early.—p. 1.
Operations on Nasal Septum. H. C. Todd.—p. 4.
Significance of Pain in Ear. J. H. Barnes.—p. 7.
Keratoconus. W. T. Salmon.—p. 10.
Eye Strain as Factor in Gastric Neuroses. A. C. McFarling.—p. 13.

Southwestern Medicine, El Paso

December, 1918, **2**, No. 12

Vagotonia. G. Werley.—p. 1.

War Medicine, Paris

October, 1918, **2**, No. 3

Surgery in Battle Areas. G. W. Crile.—p. 293.
*Prevention of Acute Respiratory Affections. W. W. O. Beveridge. p. 300.
*Acute Respiratory Infections Among Colored Troops in French Army. Borel.—p. 306.
*Experiences of American Expeditionary Forces with Respiratory Infections. H. Emerson.—p. 311.
*Acute Respiratory Infections: Pneumonia. H. Zinsser.—p. 316.
Field Sanitation. Methods of Feces Disposal and Fly Prevention in French Army. O. Monod.—p. 324.
Disposal of Feces and Fly Prevention in British Army. F. P. Joscelyne.—p. 327.
Feces Disposal and Fly Prevention in a Division. J. W. Gressinger. p. 333.
Feces Disposal and Fly Prevention in a Base Section. H. C. Coburr—p. 339.

Prevention of Acute Respiratory Affections.—During the period prior to the war Beveridge says accommodation in barracks and hutments in Great Britain was provided on the scale of 60 square feet or 600 cubic feet per man. On the outbreak of the present war the great influx of recruits necessitated a somewhat less generous provision, and having regard to military exigencies, 40 square feet or 400 cubic feet was fixed as the minimum accommodation which could safely be permitted in quarters. This has since come to be regarded as a war time standard. The distance between beds is of paramount importance and quite a moderate degree of "spacing out" of beds combined with simple methods for improving ventilation is highly effective in reducing carrier rates. Infectious diseases affecting the respiratory passages are largely spread by "spraying" from the nasal and buccal orifices of infected persons, so that the chances of a healthy person in the neighborhood becoming infected increase enormously the nearer such a person is to an infected individual. In addition, inadequate ventilation permits of a great concentration of infective material in the surrounding air which increases the chances of transmission of infection.

The important elements in "overcrowding," so far as the spread of infectious disease affecting the respiratory passages is concerned, are, therefore, proximity of heads and defective ventilation. Ventilation may be improved within the limits short of creating a draught, but satisfactory results can only be expected when close proximity of heads is also prevented. Proximity of heads and degree of ventilation are, therefore, the criteria by which the adequacy of accommodation should be judged.

In calculating cubic space in quarters, heights above 10 feet are neglected as not contributing useful space so far as the prevention of true overcrowding is concerned. In hutments the cubic space above 10 feet from the floor is usually relatively small and for practical purposes may be neglected. On this basis the floor space expressed in square feet is numerically one tenth of the cubic space, so that accommodation may, for simplicity, be expressed in terms of square feet of floor space. Where huts are about 20 feet wide, as is commonly the case, and men sleep down each side of the linear wall, space per man is numerically a tenth of the floor space per man and affords a ready and rapid guide as to the sufficiency of accommodation. In ordinary hutments, therefore, 400 cubic feet, or 40 square feet of floor space, or 4 linear feet of wall space per man, may be regarded as affording the same accommodation. Accommodation in tiers is not recommended where it can be avoided; it may be necessary in forward areas but in no case should more than two tiers be countenanced unless for very short periods and on grounds of military urgency. In ordinary hospitals 60 square feet of floor space with 6 feet of wall space per patient is provided, but during periods of pressure this may have to be reduced to 5 feet of wall space. In hospitals for infectious disease 100 square feet of floor space is allowed.

Protection against cold and inclement weather in the shape of warm and waterproof clothing has a marked effect in preventing a lowering of resistance, and in this connection the importance of providing efficient drying rooms at all camps and billeting areas cannot be overemphasized. Such drying rooms may be heated by coke or coal stoves, or the heat from incinerators may be utilized. In order to maintain resistance to disease and to mitigate its severity when contracted, a sufficiency of good and well-cooked food is essential.

Acute Respiratory Infections Among Colored Troops in French Army.—Borel's observations show that among the French black colonial troops acclimatization and vaccination were the two factors of value in producing immunity against pneumonia. Seven thousand men, who had already been acclimated for two or three years, were immune to such an extent that only two deaths resulted from pneumonia. Senegalese who had been in contact with the pneumococcus for one year and who had gone through epidemics at the time of their arrival in France were, it appears, spontaneously vaccinated. A colored contingent of 600 men, who arrived in the midst of an epidemic of pneumonia was vaccinated and apparently with perfect result.

Experience of American Expeditionary Forces with Respiratory Infections.—Of the 1,613,500 days lost in the American Expeditionary Forces up to June 1, 1918, from all causes—sickness, accident, injury in action and other traumatisms—Emerson finds that 1,481,000 days, or 91.78 per cent., were lost because of sickness. Of the total loss of days due to hospitalization from sickness 631,226 days, or 42.61 per cent., were due to eleven communicable and respiratory infections, the average number of days lost for each case of the diseases, respectively, to be as follows: pneumonia (lobar), 22.7 days; meningitis (meningococcus), 20.7 days; scarlet fever, 14.8 days; mumps, 12.0 days; pneumonia (broncho), 11.7 days; measles, 10.3 days; diphtheria, 7.2 days; bronchitis (acute), 6.3 days; pharyngitis (acute), 4.3 days; tonsillitis (acute), 4.1 days; influenza, 3.4 days. Among the causes which are known to have contributed to the high incidence of the diseases in question are crowding in camps, in trains, on transports, at ports of embarkation and in barracks; exhaustive drilling, working and sleeping in wet clothing and shoes; eating of food served cold, insufficient blankets for warm sleeping; habitual neglect of open window ventilation of barracks; spitting promiscuously and failure to protect the nose and mouth when coughing and sneezing among groups of men.

Acute Respiratory Infections.—To prevent pneumonia of the lobar type, Binsser says one must not only prevent contact but remember that the most important thing is to avoid reduction of that resistance which naturally is very high in all human beings, and that one is dealing with a matter which requires careful hygiene and sanitation. The most important of all is the question of ventilation and air space. The normal resistance of a human adult is much less complete against streptococcus infections than against pneumococcus infections. In an epidemic of 701 cases of pneumonia, 389 patients did not have measles. Of these ninety-three died. The death rate of primary pneumonia was 12 per cent., and the death rate of cases following measles was 29.8 per cent.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 21, 1918, 2, No. 3025

Early History of Army and Navy Medical Service. A. Chaplin.—p. 675.
*Bone Grafting in Gunshot Fractures of Jaw. W. Billington.—p. 679.
*Influenza: Its Cause and Prevention. W. F. Robertson.—p. 680.
Blood Agglutinins in Meningococcal Attacks. I. W. Hall.—p. 681.
Nitrous Oxid and Oxygen in Combination with Ether or C. E. Mixture for Nose and Throat Operations. H. E. G. Boyle.—p. 684.
Historical Account of Tonsillectomy. E. E. V. Glover.—p. 685.
Operating to the Clock. J. O'Conor.—p. 685.

Bone Grafting in Gunshot Fractures of Jaw.—The authors are opposed to fixing bone grafts or fragments by plates and screws, by wiring, or even by dovetailing the graft into the fragments, because the presence of foreign bodies greatly militates against successful healing, a sinus down to the plate or wire almost invariably forming. Their practice now is to keep the graft in place by sewing the soft tissues closely over the graft and the ends of the fragments by hardened catgut. This has the additional advantage of closely surrounding the graft with living vascular tissue and abolishing dead spaces in which blood clot and serum can collect. This improves the nutrition of the graft and diminishes the risk of sepsis. The skin is approximated with a few interrupted stitches. No drainage is employed beyond that of leaving spaces between the skin sutures to allow the escape of serum. A simple dressing and bandage is applied.

Use of a Vaccine Made from Influenza Bacillus.—Over 100 cases of chronic infection by the bacillus of influenza have been studied by Robertson. In nearly all of these cases therapeutic immunization has been carried out. The focal and general reactions produced, and the successful therapeutic results that have been obtained Robertson regards as being consistent only with the view that the bacillus from which the vaccines were prepared was the chief cause of the catarrhal conditions from which the patients were suffering. Correct therapeutic doses commonly caused distinct focal reactions; overdoses were followed by the development of symptoms simulating those of influenza. A continuation of correct therapeutic doses over a period of from six to ten weeks almost uniformly resulted in complete recovery from the malady. If the bacillus of influenza had not been the chief cause of the ailment, the author is convinced that these results could not have been obtained.

In the treatment of acute influenza, therapeutic immunization acts, in Robertson's experience, with equal success. A dose of 0.02 mg., repeated after twenty-four hours, generally causes the temperature to fall to normal within forty-eight hours. It is of advantage to use sensitized vaccines in acute cases. For the purposes of the preparation of these sensitized vaccines, two sheep are kept immunized against bacillus influenza. The administration of a sensitized vaccine is followed by comparatively little reactive disturbance. Robertson believes that the most convincing evidence of the causal relationship of Pfeiffer's bacillus to influenza can be obtained from the phenomena that may be observed in the carrying out of the protective inoculation. He made a number of these inoculations at the time of the summer epidemic; none of the persons contracted influenza. Robertson gives at intervals of from two to three days, successive doses of about 0.03 mg., 0.06 mg. and 0.12 mg., or two doses of 0.04 mg. and 0.12 mg. The smaller doses are given first in order to create a certain degree of tolerance of the toxin before the full dose required for complete protection is injected, and to provide against the possiblity of hypersensitiveness, which occurs in all persons who are suffering from a chronic infection by the bacillus. After each of these doses most persons within twelve to twenty-four hours experience in mild degree the symptoms of influenza. If the dose of 0.12 mg. is given at once, severe disturbances are generally experienced.

Journal of Laryngology Rhinology and Otology, London

December, 1918, 33, No. 12

Classification of Syndromes of Associated Laryngeal Paralysis. M. Vernet.—p. 354.
*Schultze's Monochord. W. M. Mollison.—p. 365.
Cholesteatoma of Lateral Pharynx. J. J. Kyle.—p. 366.

Schultz's Monochord for Testing Hearing.—Recently the Otological Section of the Royal Society of Medicine approved a "standard" scheme for the testing of the hearing; in that scheme the determination of the range of hearing was included, and it was suggested that Galton's whistle or the monochord should be used to investigate the upper limit of the range. Mollison endeavors to establish the claims of the monochord over the Edelmann-Galton whistle, as an instrument of greater precision. The monochord consists essentially of a steel wire stretched between projections at either end of a steel bar; on the bar is a "bridge" which grips the wire and thus can vary the effective length of wire; for convenience the bar is provided with a handle. In practice the wire is 50 cm. long, and the bar is marked off in centimeters; this length of wire does not give low enough notes for all cases; to meet this a longer frame can be made. The wire is a steel wire (a "banjo wire") gage 26. The notes are produced by rubbing the wire in its length with a piece of wool soaked in methylated spirit or turpentine; the wool is held between the finger and thumb, and the wire pinched while the wool is pulled along the wire. An alternative method is to use a piece of chamois leather coated with powdered resin, but this is not quite so easy to use. For the highest notes a short, hard rub is best, for lower notes a lighter rub, and one on that part of the wire nearer the bridge gives a clearer and cleaner note. It is easier to produce clear notes with a heavy frame. The advantages of this instrument are said to be: (1) It is easily standardized. (2) It is simple to use. (3) By placing the support of the wire on the mastoid process the upper tone limit through bone can be tested.

Lancet, London

Dec. 21, 1918, **2**, No. 25

*Lethargic Encephalitis. E. F. Buzzard.—p. 835.
Lethargic Encephalitis in England. S. P. James.—p. 837.
Mass-Reflex in Injuries of Spinal Cord. G. Riddoch.—p. 839.
*Blood Pressure and Physical Fitness of Soldier. V. E. Sorapure.—p. 841.
*Complement-Fixation Test in Tuberculosis. E. Fidlar.—p. 844.
Acute Poliomyelitis in Infant 12 Days Old with Extensive Paralysis and Recovery. T. H. Gunewardene.—p. 847.
Primary Nocardiasis of Lacrymal Gland. J. B. Christopherson.—p. 847.

Dec. 28, 1918, **26**, No. 2

*Bacteriology and Pathology of Influenza. H. E. Whittingham.—p. 865.
Severe Cases of Influenza Occurring During Present Epidemic. T. Horder.—p. 871.
*Vaccines in Acute Influenza. W. H. Wynn.—p. 874.
*Recent Influenza Epidemic. D. T. Harris.—p. 877.
Aspects of Long-Standing Pulmonary Tuberculosis. C. D. Wood.—p. 877.
Case of Bence-Jones' Albumosuria with Lymphocytic Leucocythemia. H. L. Heimann and C. B. Wilson.—p. 879.

Lethargic Encephalitis.—Buzzard calls attention to the fact that there is a form of encephalitis which has the constitutional disturbances, the age incidence, the seasonal exacerbations, the sporadic and epidemic types and the immunity from second attacks which are shared by measles, scarlatina, and other acute specific fevers, and that it presents an inflammatory lesion of a particular tissue in the same way as typhoid, diphtheria and smallpox display inflammatory lesions of other tissues. This form of encephalitis has been shown to be due to the virus of poliomyelitis and it should be noted that the disease is an acute one running its course in a few days, but often leaving permanent results in the form of paralysis, mental defects and epilepsy. Lethargic encephalitis, which has attracted notice this year is a distinct disease of a second group. In a third group of cases the force of the inflammation is spent on the cerebral cortex, and gives rise to considerable difficulty in diagnosis, especially in regard to the possible presence of cerebral tumor, cerebral abscess, or cerebral hemorrhage.

Buzzard cites four cases belonging to this group. All four patients were over 40 years of age, but none of them presented cardiovascular changes suggesting the possibility of cerebral hemorrhage as a diagnosis. In none of the four cases did the clinical history conform closely to that of cerebral hemorrhage, but suggested some more subacute lesion, and naturally gave rise to the question of abscess or syphilitic thrombosis. In all four cases the Wassermann reaction of the cerebrospinal fluid was negative. The lesson to be learned from the experience is that patients over 40, and even over 50 years of age may be the victims of encephalitis, producing the general symptoms of hemiplegia, aphasia, hemianesthesia, or hemianopia. In the second place, a naked eye examination of a brain on a postmortem table is not sufficient to discriminate between an ordinary cerebral hemorrhage and a hemorrhage which is only an accidental occurrence in the course of an encephalitis. When there are no obvious gross signs of disease in the cerebral arteries to account for a hemorrhage, it is essential that microscopic investigation should be carried out in order to determine the cause for the blood extravasation. Third, the presence of thrombosed cortical veins associated with hemorrhage in the neighboring brain substance is strongly indicative of an inflammatory process.

Blood Pressure and Physical Fitness of Soldier.—Sorapure suggests that the presence and relative lengths of the various phases ordinarily recognized between the systolic and diastolic pressures is of wider clinical significance than the height of the systolic pressure alone, or even that of the systolic and diastolic readings compared. He claims that it is quite a common experience to find an obviously inefficient heart giving what is accepted as a normal systolic and diastolic blood pressure reading. He has never seen a case such as this which showed all the phases in anything like the suggested normal proportion. An analysis of the blood pressure findings in a group of 769 soldiers (Guardsmen) during the twelfth week of training, showed that the most constant factor, the diastolic pressure, is for all ages somewhere between 70 and 90; that the systolic pressure should be about 50 or 60 per cent., higher than this; that the range of pressure between the two should be capable of differentiation into three different phases—the first, or first tonal, being 20 per cent. of the whole; the second or murmur phase, 40 per cent., and the third, or second tonal, 40 per cent. These findings are characteristic of the fit man.

An analysis was made of a group of 189 men, all of whom had been invalided home from abroad, but included none of organic heart trouble. Practically all showed, or had showed, evidence of autonomic disturbance of the cardiovascular mechanism (D. A. H.). Certain features in the group stand out clearly: (1) The very high percentage of the men who do not show all the phases and the greater instability of the diastolic pressure. (2) That even those who showed all phases show quite a remarkable variation in the relative proportion of these as compared with the first group. The best groups in this table, namely, ages 29 and 36, compare most unfavorably with the worst groups of the first table, namely, ages 37 and 39. The conclusions are: (*a*) that the men who are less efficient than normal do not show the characteristic phases which prevail in the first group; (*b*) that those who are physically fit show these phases in the majority of readings; (*c*) that the result of this simple test is a factor worth considering in estimating the physical capacity of an individual.

Complement Fixation Test in Tuberculosis.—The percentage of positive reactions obtained by Fidlar in his investigation in active pulmonary tuberculosis was about 75.5. The strong reactions occurred most frequently, as would be expected, in active tuberculosis, 35 per cent., in incipients, 37 per cent., in the moderately advanced, 48 per cent., in the advanced. Of 215 clinically nontuberculous cases the fixation test was positive in 21.8 per cent. Eight per cent. of the cases of tuberculosis gave a positive Wassermann, hence the proportion among tuberculous soldiers is practically not greater than occurs in the civilian population.

Bacteriology and Pathology of Influenza.—Over 100 patients were examined by Whittingham and Sims as regards the micro-organisms present in the posterior nasal swabs and sputum. The urine of these patients was also examined on several occasions. Blood cultures were performed on only the first fifty cases. The results show that there is septicemia in some of the cases. Most of these have a fatal issue. It was impossible to state definitely whether this septicemia is present early in the disease or only as a late symptom. That it is a late symptom is borne out by the fact that streptococci were isolated from the heart's blood after death in cases where the blood culture was negative early in the disease. The causal micro-organism of the septicemia is not the same in all cases. The examination of sputum and posterior nasal swabs showed a mixed and fairly constant flora. Such organisms as streptococcus, pneumococcus, *M. catarrhalis* and *B. influenzae* were present in a high percentage of cases; in all instances over 66 per cent., except in that of *B. influenzae* (46 per cent.). The predominating organism varies, being: *M. catarrhalis* in 34 per cent., streptococcus in 30 per cent., pneumococcus in 26 per cent., *Staphylococcus aureus* in 8 per cent., and *B. influenzae* in 2 per cent. of the cases. In only one of this series of cases was Pfeiffer's bacillus found to be the predominating organism.

Postmortem examinations showed lung lesions in all cases, varying from congestion and edema to pneumonia and pus formation. Invariably the picture was that of a marked toxemia, e. g., congestion and petechial hemorrhages of serous and mucous membranes, cloudy swelling and fatty changes of liver, kidney and cardiac muscle, and in two an acute nephritis. The micro-organisms isolated from lung, pleural and peritoneal lesions, blood and spleen coincide closely with the mixed flora obtained before death. Only in one case was the *B. influenzae* found in the lesions. Isolation of diplostreptococci from the heart's blood and spleen postmortem supports the view that a true septicemia is present.

The daily leukocyte counts show that all cases do not conform to one type. Broadly speaking, a leukopenia, if continued, is of bad, a leukocytosis of good, prognostic import. A marked leukocytosis after the eighth or ninth day, especially if the eosinophils are much decreased or absent, strongly suggests complications. Incomplete recoveries and the oncoming of a relapse can often be diagnosed from the blood picture, even when the clinical signs are slight or absent.

Prophylactic vaccination on two, preferably on three, occasions with a weekly interval between each inoculation is without risk, increases the immunity of the individual, and prevents the onset of pulmonary complications. Should the inoculated develop influenza, the course of the disease is invariably mild.

As regards treatment, the authors recommend that: (1) In very early cases a full dose of prophylactic vaccine should be administered. No further doses to be given, at least for several days. (2) Cases can be seen on the first day, or later, provided the temperature falls to normal, unless symptoms become worse. (3) Those cases which show high pyrexia or toxic condition from the start should be treated with polyvalent antistreptococcus serum, 20 c.c., administered subcutaneously as soon as possible, and followed by daily injections of 10 c.c. for three or four days. With this treatment calcium lactate, 5 grains, should be given daily for seven to ten days to ward off serum sickness. Vaccine may be combined with this, if required. Other forms of treatment may be combined with the above.

Vaccines in Acute Influenza.—Admitting that it may be argued that vaccine has no curative action in acute diseases, Ynn is convinced from a study of his cases that, at least, it does no harm. A constant feature has been the drop in temperature following an injection. In acute lobar pneumonia the respirations are slowed pari passu with the temperature and pulse. In influenzal bronchopneumonia, if the respirations are rapid they are slowed with the fall of temperature, but in the serious cyanotic cases with slow respirations, the rate is increased. At first the respiratory center is depressed, but with improvement come stimulation of the center before it returns to normal. The results obtained in influenzal bronchopneumonia are similar to the results obtained for several years in acute lobar pneumonia and other types of bronchopneumonia.

Bacteriology of Recent Influenza Epidemic.—Cultural examination of the aseptically obtained lung juice from a case of "influenza" eight hours after death gave an organism resembling *B. pestis* in appearance and staining characters, but isolation and growth are far more difficult than with *B. pestis*. The same organism was isolated from the throats of "carriers"; in two cases of death from this "influenza" the Klebs-Loeffler bacillus was recovered from the lung. Aphonia had been a symptom in one of these cases.

Seale Hayne Neurological Studies, London

July, 1918, **1**, No. 1

Pharyngeal Anesthesia. A. F. Hurst and J. L. M. Symns.
Signs and Symptoms of Malingering, Hysteria and Organic Nervous Disease. A. F. Hurst.—p. 7.
Narrow and Spiral Fields of Vision in Hysteria, Malingering, and Neurasthenia. A. F. Hurst and J. L. M. Symns.—p. 15.
Supposed Association of Hysterical Anesthesia of External Ear with Hysterical Deafness. A. F. Hurst, J. L. M. Symns and R. Gainsborough.—p. 19.
New Group of Hysterical "Stigmata." A. F. Hurst and J. L. M. Symns.—p. 21.
Hysterical Romberg's Sign. A. F. Hurst and S. H. Wilkinson.—p. 24.
Rapid Cure of Hysterical Symptoms in Soldiers. A. F. Hurst and J. L. M. Symns.—p. 27.
War Contractures—Localized Tetanus, A Reflex Disorder, or Hysteria. A. F. Hurst.—p. 43.

Tropical Medicine and Hygiene, London

Dec. 16, 1918, **11**, No. 24

Blood Parasites. F. G. Cawston.—p. 241.

Archives des Maladies du Cœur, etc., Paris

November, 1918, **11**, No. 11

*Traumatic Obliteration of Arteries. Babinski and Heitz.—p. 481.
*Hypertrophy of Heart in Aviators. G. Etienne and G. Lamy.—p. 510.

Traumatic Obliteration of Arteries.—Babinski and Heitz tabulate the details of 106 cases of obliteration of an artery from a war wound, classified according to the artery involved and outcome of the case. If the limb is immersed in a hot bath for a certain length of time, the oscillometer findings come to approximate those on the sound side if the obstruction to the flow of blood is merely a vasomotor phenomenon. There is no change in the findings under the hot bath test if there is actual obliteration. Collateral circulation may in time overcome the effects of the obliteration. A difference of more than 1.5 cm. mercury between the systolic pressure on symmetrical points in the two limbs is pathognomonic of obliteration of a main artery if an aneurysm can be excluded and the limb is normally developed. In certain rare cases the circulation several months and years later finally approximated normal, but in a larger number two years later there is still a difference of from 3 to 6 cm. mercury between the pressures. The majority are between these extremes. In a large proportion of the total cases the obliteration was the result of a ligature applied to the artery to arrest hemorrhage.

Hypertrophy of Heart in Aviators.—Summarized, Oct. 26, 1918, p. 1442, and Dec. 21, 1918, p. 2110.

Archives Mensuelles d'Obstêtrique et de Gynêcologie, Paris

July to September, 1918, **7**, No. 7 to 9

*Wedge Excision of Uterus. R. d'Ernst.—p. 161.
*Placenta Praevia. A. Boquel.—p. 190.
*Curvature of Spine in the Newborn. G. Geffray.—p. 200.
Obstetrics in Older French Literature. M. Boutarel.—p. 212.
*Transfusion of Blood in Obstetrics. A. C. Guillaume.—p. 217.

Conservative Surgery of the Adnexa.—D'Ernst states that time enough has now elapsed since Beuttner in 1908 first applied his transverse wedge excision of the uterus for removal of diseased adnexa for its advantages to be thoroughly established. Recent reexamination of the forty cases in which the method was applied between 1908 and 1914 shows highly satisfactory results, both immediate and remote; menstruation was not interfered with and there has been no return of genital disturbances and nothing to suggest the premature menopause. The various steps of the operation are shown in seven plates. The method is designed for young women as it aims to leave most of the uterus and at least one ovary or part of one. The transverse laparotomy and preventive ligation of the uterine and ovarian arteries are followed by the excision of a transverse wedge in the fundus of the uterus. This wedge represents the continuation across the uterus of the axial line of the adnexa. When the wedge has been excised, it is cut in two along the median line, and the two halves are turned back on each side, and the lips of the gap in the uterus are sutured together. After this, the adnexa are removed as indicated, but always with care to leave one or part of one ovary. A somewhat similar method was published by Blair Bell in 1913, but it does not include the hemisection of the excised transverse wedge, while Beuttner regards this as important as it permits access to the adnexa from the median line outward and from below upward. There were five deaths in this series of forty but the cavity of the uterus could not be incriminated in any instance; in one case the simultaneous appendicectomy was evidently a factor in the fatal outcome. In the others the extent of the inflammatory lesions or a cureting done shortly before, or the clandestine use of liquor was evidently responsible. In later series of cases and in the experience of others who have applied this technic, there have been no fatalities to date.

Placenta Praevia.—Boquel advocates abdominal cesarean section when severe hemorrhages during a pregnancy are endangering life. In a case reported the woman was at the fifth month, the cervix long and without any tendency to dilate, and the hemorrhages from placenta praevia had brought her into a serious condition. The high cesarean section showed the uterus normal, and it was left undisturbed after extraction of fetus and placenta. The woman has passed through two normal pregnancies since, with healthy children. The fetus is unable to develop normally when there are recurring grave intra-uterine hemorrhages, and the high section leaves the normal uterus ready for further pregnancies. Boquel remarks that his case is the fourth that has been published in France of cesarean section for placenta praevia, while in 1913 Döderlein had compiled 146 cases in the other countries.

Curvature of the Spine in the New-Born.—Geffray shows by an artificial head and spine and illustrations of cadavers of new-born infants that in determining the pressure of the cerebrospinal fluid the attitude of the subject should be taken into account. He also shows the importance of the attitude of the fetal spine in the birth process.

Transfusion of Blood.—Guillaume describes each of the various methods for transfusion of blood at present in vogue, and remarks that notwithstanding the progress realized in the last few years, there is still room for improvement. Not only the corpuscular elements in the blood but the volume of the blood fluid have to be restored to overcome the effect of severe hemorrhage. It is not necessary, he says, to restore as many corpuscles as have been lost, but enough should be infused to supply material from which new ones can be made, the presence of the corpuscles, in itself, acting to stimulate the production of new. He suggests that the blood to be used might be taken up in a syringe already containing a certain amount of physiologic saline solution. By this means the saline and the blood could be infused together, at one intervention supplying the two factors needed for the regeneration of blood: whole blood and sufficient fluid for the heart to pump on.

Lyon Médical

April, 1918, **127**, No. 4

Deficiency Diseases. The Alimentary Origin of Pellagra. E. Weill and G. Mouriquand.—p. 145.
Bilharziasis in France; Ten Cases. Boulouneix.—p. 151.
Transfusion of Citrated Blood: Agote Method. J. B. Abalos.—p. 186.

August, 1918, **127**, No. 8

Necropsy in Case of "War Nephritis" of Two Year's Duration. Péhu, Daguet and J. F. Martin.—p. 337.
Radium Therapy in Gynecology. Condamin and *Nogier.—p. 344.* Conc'n.
Treatment of Acne. P. Jourdanet.—p. 349.
*Treatment of Diphtheria. A. Perretière and M. Bouchet.—p. 352.

Diphtheria.—Large doses of antitoxin and local application in the form of powder, insufflated into the nose and throat until the bacilli have entirely disappeared, are advocated in this article.

Nourrisson, Paris

November, 1918, **6**, No. 6

*Intolerance for Milk. A. B. Marfan.—p. 321.
*Cerebrospinal Fluid in Infants. J. Crespin and G. Athias.—p. 329.
*Pathology of Heart in Syphilitic Infant. R. Flament.—p. 340.
*Lead Poisoning from Nursing Bottles. Guerbet.—p. 344.
*Kala-Azar in Children in France. M. Labbé, Targhetta and Ameuille.—p. 346.
Poliomyelitis in New York in 1916. Germain and Blechmann.—p. 348.

Intolerance of Certain Infants for Cow's Milk.—Marfan distinguishes between the children who merely do not thrive on cow's milk and those for whom it is an active poison. This latter group of cases is very small; the infants are usually from 5 months to 2 years old although instances have been known in children up to 6 years of age. He analyzes the arguments that have been presented to sustain the assumption that this intolerance for high grade milk is a form of anaphylaxis. He recalls, however, that to date no one as yet has determined in the blood of such children the presence of the proteins from cow's milk retaining their heterogenous character. The possibility of anaphylaxis from ingestion is still open to discussion; Bauer and Besredka's researches in this line were negative. The toxic manifestations may occur at the first ingestion of the cow's milk—a fact which does not harmonize with the conception of anaphylaxis. The toxic manifestations occur also irregularly and variably, and similar symptoms have exceptionally been observed with breast milk.

At the same time, the theory of anaphylaxis seems more plausible than any other yet advanced. A breast-fed child given cow's milk for the first time may at once present fever, vomiting, mucous diarrhea, sometimes bloody, with or without a rash, the respiration becoming fast and deep, with weak pulse, choleriform aspect of the face and tendency to collapse. This toxic clinical picture subsides at once on suppression of the cow's milk, but returns on its resumption. This clinical picture may develop suddenly in children who have been previously apparently thriving on cow's milk. Also in children who had been returned to the breast for a time, as they were not thriving on artificial food, and these toxic manifestations appear when they are given cow's milk anew. In a fourth group of cases, they develop when a bottle-fed baby has been kept on water alone for a day or two and the cow's milk is then resumed. Even a very small amount starts the toxic syndrome. Its sudden appearance even after as little as a teaspoonful of milk in the child's food, and the liability to return at each new ingestion of milk, are special features of this intolerance. In a case reported by Finkelstein, at the fifth attempt, the child getting 10 gm. of cow's milk diluted by a third, developed subacute enterocolitis immediately, with convulsions and death. The usual progressive aggravation at each repetition is one of the strongest arguments for the anaphylaxis theory.

Treatment may require saline infusion, camphorated oil and tepid baths, as for any choleriform diarrhea, in addition to stopping the cow's milk and feeding only water for a day and then giving breast milk or asses' milk. If the child is over 6 months old, gruels made with water, and sweetened, may be given. If breast milk is not available or the child is too young to be fed gruels, good results can generally be obtained by training the child to tolerance, that is, by giving 1 drop of milk in 50 gm. of water; an hour later 2 drops, and so on, every hour doubling the number of drops. When the child thus tolerates a teaspoonful every hour, stop the milk for twenty-four hours and then resume progressively, with longer intervals until the normal ration can be resumed. Water or vegetable broth can be given in addition, to supply the adequate nourishment. Whenever a child known to have displayed an intolerance for cow's milk returns to it after an interval of suspension, it should be resumed by this progressive technic. Modified milk is often borne better than plain milk; buttermilk or condensed or desiccated milk can be used first, to train to tolerance, returning later to ordinary milk. Schlossman has reported success in training to tolerance by injection of progressive doses of beef serum from 0.1 to 1 gm., but Salge's experience with this was disappointing.

The Cerebrospinal Fluid in Meningitis in Infants.—Crespin and Athias report a case of tuberculous meningitis and one of syphilitic meningitis, both in children under 2, breast fed, and both having urea in the lumbar puncture fluid. Urea in this fluid, therefore, cannot serve to differentiate meningitis of tuberculous origin as Nobécourt has recently asserted. It deserves the greatest attention, however, as possibly a sign of intoxication of some organ remote from the nervous system.

Hypertrophy of Right Heart in Infant.—The child of 9 months had inherited syphilis and, besides the *malformation* entailing the hypertrophy of the right heart, there was endocarditis of the mitral and tricuspid valves.

Lead Poisoning from Nursing Bottles.—Guerbet refers to bottles made from what is called crystal. He found that a child using one of these bottle was growing pale and developed eczema. The milk also showed slight discoloration. The glass is made with a certain percentage of lead.

Kala-Azar in France.—Summarized when article appeared elsewhere. (June 1, 1918, p. 1638.)

Paris Médical

Nov. 23, 1918, **8.** No. 47

*The Teaching of Therapeutics. P. Carnot.—p. 409.
*Jaundice with Picric Poisoning. P. Merklen.—p. 417.
*Influence of Quinin on Stomach Functioning. P. Baufle.—p. 418.
*Immunization in Inherited Syphilis. Lacapère and Laurent.—p. 422.

Nov. 30, 1918, **8.** No. 48

*Medical Service for Repatriated Civilians. L. Bernard and P. Armand-Delille.—p. 426.
*Rebellious Dyspepsias. C. Nordman.—p. 433.
Technic for Determination of Carbon in Urine. L. Bauzil.—p. 435.
*Improved Technic for Amputation. Phocas.—p. 435.

Teaching of Therapeutics.—This is the inaugural lecture of Carnot's course on therapeutics which, he reiterates, is "the synthesis and the conclusion of all medical science. All our efforts to discover the causes of disease, its symptoms and lesions, have for their aim the cure of the sick. So that, for the therapeutist, scientific research is constantly supplemented by efforts for immediate practical results. This dual aspiration molding the mind of the physician makes of him at the same time a savant climbing to the peaks and a pitiably humble gleaner palpitating with humanity." Carnot includes in therapeutics all electric and other physical measures, climate and diet as well as vaccines, serums and organ extracts, besides all forms of psychotherapy.

Picric Acid Jaundice.—Merklen recalls that the discloration of the skin by picric acid and its derivatives occurs as a rule without any changes in the liver at first. Long kept up, however, the liver suffers and there is actual jaundice.

Action of Quinin on Stomach Functioning.—Baufle gave test meals to the same subjects with and without 1 gm. quinin sulphate or hydrochlorid in a cachet. The stomach content was examined in thirty minutes and again an hour later, the stomach being rinsed out each time with 200 c.c. of water. The effects observed demonstrate the necessity for selecting the preparation of quinin in accordance with the state of the subject's stomach. When there is a tendency to hypersecretion, the sulphate should be given the preference. With hyposecretion, the hydrochlorid should be selected as this stimulates sluggish glands to better secretion. It should be given from thirty to forty minutes before the meal, in about 100 or 150 c.c. of water. The quinin by this means will have passed out of the stomach before the meal begins, leaving the secretory glands stimulated to a high degree. The sulphate, on the other hand, modifies conditions very little, no more than the physiologic range.

Immunization by Inherited Syphilis.—The Mohammedans of Morocco are infected by syphilis to such an extent that scarcely 25 or 30 per cent. escape. In five schools at Fez, stigmata of inherited syphilis were found in 107 of the 272 children. In some of the others there is nothing to suggest syphilis except the positive Wassermann reaction. This warns of possible manifestations later, and calls for specific treatment of the children of syphilitics even when minor dystrophies may be the only sign of the latent disease. The evidence in regard to the fifth cusp among the children failed to confirm any connection with syphilis.

Medical Care of Repatriated Civilians.—Armand-Delille and Bernard describe the working of the service organized to care for civilians being sent back to France from the enemy countries. It comprises six separate services, including one for children, one for the tuberculous, and one for other diseases. A physician with two nurses boards the train as it crosses the border, and by the time it reaches the first stop the passengers are classified and those requiring emergency treatment are sent to the hospital. The vermin extermination service can attend to 200 per hour, and persons with parasitic affections are sent to an adjoining special hospital. In a recent eight months, 4,200 cases of scabies were given treatment and 234 cases of impetigo. Each case of tuberculosis is carefully classified and hospital or sanatorium treatment is provided. Those who refuse to go to such have to be allowed to proceed to where friends are awaiting them, but each is given a pamphlet of instructions and the family is given another pamphlet. A special notice is also sent to the prefect of the province so that the physician of the Comité départemental d'assistance aux anciens militaires tuberculeux can look after the case further. This complex medical service for the repatriated is in charge of fourteen physicians with large numbers of nurses: The whole system of care for the repatriated at the three receiving centers is admirably planned and organized. Valuable aid is constantly rendered by the American and French Red Cross and its London branch, the New Zealand committee, and French organizations, but above all, they say, "by the American Red Cross which here as elsewhere has given lavishly of its supplies and the devoted service of its personnel."

Rebellious Dyspepsia.—Nordman does not agree with those who think that the nervous element is the great obstacle in treatment of rebellious dyspepsia. His experience with large numbers of cases has always been that some organic thorn is always present in these intractable cases maintaining the irritation. There is usually a superposed neurosis, but back of all is the irritating organic disturbance thorn. The latter in a large proportion of cases is a colitis. In others, unsuspected amebiasis is responsible for the indigestion and weakness. Discovery of eosinophilia gave the first clue in one such case. In another case, there was no improvement under six months of sanatorium treatment for assumed tuberculosis, but after discovery of the ameba prompt recovery was realized under emetin and an arsenic preparation in small doses. In another group of cases the rebellious dyspepsia was the first manifestation of pulmonary tuberculosis. The dyspepsia improved under treatment, but the men soon returned with unmistakable pulmonary lesions. The number of such cases is legion, he says, and one cannot be too much on the alert to detect them. Taking the temperature regularly, tachycardia, modification of the pulse and low blood pressure may suggest incipient tuberculosis as the cause of what seems simple dyspepsia. He warns further that whenever there is recurring pain in the stomach in spite of repose and severe dietetic restrictions, ulcer should be suspected.

Amputation of Leg.—Phocas has the patient lie prone, face downward. He cuts the semicircular flap on the back of the leg, and ligates the vessels as he shows in illustrations. Then by merely lifting up the leg, flexing it at the knee, without disturbing the patient, he obtains free access to the other side of the leg. The exigencies of war surgery have often compelled him to operate on the patient in this prone position, and the theoretical objections against it were not realized in practice. Ether anesthesia proceeds smoothly, the lungs seeming to work unusually freely. It has even been his impression that postoperative vomiting was less frequent and the anesthesia more regular.

Presse Médicale, Paris

Nov. 28, 1918, **26.** No. 66

*The Misdeeds of the Wassermann Reaction. G. Thibierge.—p. 609.
Modification of Visual Field from Shell Concussion. A. Mairet and G. Durante.—p. 611.
Oxidation and Reduction in Action of Drugs. J. E. R. McDonagh (London).—p. 612.

Dec. 9, 1918, **26.** No. 68

*Grafts of Dead Tissues. J. Nageotte and L. Sencert.—p. 625.
*Periodical Fever with Tibialgia. J. Bourcart and Laugier.—p. 627.
*Apical Insufficiency without Tuberculosis. G. Breccia.—p. 629.
*Ether Anesthesia by the Rectum. R. Monod.—p. 630.
Transabdominal Auscultation. R. Robine.—p. 631.

Present Status of the Wassermann Reaction.—Thibierge warns against undue reliance on the Wassermann reaction. Even competent and experienced biologists may obtain contradictory findings at times. It is not a chemical reaction but a test of the properties of certain substances of unknown composition, existing in unknown and certainly variable amounts, and the test is made by means of other substances of equally unknown nature present in the reagent also in unknown proportions, and associated in the reagent with a crowd of other substances, equally unknown and in proportions independent of those which are concerned in the reaction. Besides all these uncertainties is the personal equation, one observer regarding as positive what another would class as dubious or negative. Frequent control of the antigen is also indispensable to avoid misleading findings. He warns further of laboratories which play into fakers' hands, reporting the reaction as always positive. In dubious cases we should demand a test by known competent authorities before making the diagnosis or starting treatment for syphilis. In the first three weeks there is a reaction in about 68 per cent. of the cases; positive results even in as many as 91 per cent. of the cases cannot be anticipated before the seventh week. After the fifth week the Wassermann test is most dependable; before this only the discovery of the spirochete is decisive. During the war, mixed chancres have become comparatively common. The seroreaction six or seven weeks after the first symptoms will reveal whether the syphilitic infection is or is not associated with simple chancre. He declares further that the seroreaction is negative in about 10 per cent. of syphilitics with active manifestations of the disease. The reaction is liable to occur also in certain skin diseases in *nonsyphilitics*, and even in syphilitics with these skin diseases, who otherwise would respond negatively to the test. This fact has misled some into assuming a syphilitic origin for some of these skin and other affections, including Paget's osteitis deformans.

The Wassermann reaction should not be depended on as a guide for treatment during the first year of infection. The test should be applied occasionally as it may indicate whether or not treatment should be intensified, but it is folly indeed to give the patient to understand that continuing or suspending treatment depends exclusively on the Wassermann reaction as if it were an automatic therapeutic slot machine. In the latter stages of the disease, it is a useful guide when positive; it is less reliable when negative. Especially with syphilis of the nervous system, in which the Wassermann reaction is often negative, the patient would be deprived of the benefit from treatment if it were suspended because the Wassermann test was negative.

Thibierge insists that this test should not be allowed to modify the old rule that consent to marriage should not be given till four years from infection—some say six years—and when eighteen months have passed without manifestation of the disease. The only modification of this rule is that, after this delay, a positive Wassermann reaction calls for further postponement until it has veered to negative. He remarks that none of the authorities in syphilology have modified this rule for any patients who have presented manifestations of the second stage of syphilis.

In regard to energetic abortive treatment, he says that to date we have no means of positive knowledge whether the patient has been actually cured or not. Theoretically we may assume this, and sometimes we find that a patient has contracted a new syphilitic chancre. But in reality this occurs less frequently than we have been given to suppose, and it is more prudent to cling to the classic rules until longer experience has settled the question. The most that can be granted is that when the initial treatment was known to have been really energetic and repeated serum tests have been consistently negative, consent to the marriage might be given in three years. In conclusion he warns against breeding or fostering syphilophobia in impressionable subjects who ascribe exaggerated importance to the Wassermann test. The physician must be extremely careful in examining and in what he says in regard to the Wassermann test to easily unbalanced persons who have been exposed to syphilis. An imprudent word or the dictum of some irresponsible laboratory will convince nonsyphilitic men of this type that they have syphilis, and they then fall a prey to fakers of all kinds.

Grafts of Dead Tissue.—The success of Nageotte and Sencert in using dead tendons and other tissues to bridge gaps has been recently mentioned in The Journal. They here report experimental research which explains the mechanism of the process. The microscope shows that the ingrafted tendon blends with the living tissues until no line of demarcation can be detected. The dead graft actually comes to life, as it were. This occurs constantly with the proper technic with grafts the structure of which permits immigration of the connective tissue cells of its host. After the dead protoplasm has been carried off by the migrating cells, the fibroblasts flock into the persisting connective tissue frame left; circulation becomes reestablished and in time it is actually impossible to tell that the graft had been dead when it was implanted. Using grafts after fixation in alcohol or with formaldehyd, they do not induce any reaction and they become soldered directly to the tissues of the host without interposition of any new tissue. The eight illustrations give the findings in dogs; they show that there is no need to use fresh living grafts or living cold storage grafts, as the dead grafts of tendons, arteries, etc., answer the purpose perfectly.

Periodical Fever with Tibialgia.—Bourcart and Laugier describe what they think is a new clinical entity. The chills and fever resembled attacks of malaria except that the temperature never went above 39.5 C. (103 F.) and it took from thirty-six to forty-eight hours to reach this height and even longer to subside to normal. The intervals are of variable length. The febrile periods are accompanied by agonizing nocturnal pain in the tibias which become intensely sensitive, this tibialgia dominating the clinical picture. It appeared in small epidemics among troops in quarters previously occupied by Russians.

Hypocapacity of the Apex.—Breccia describes the physical signs which reveal that the apex is not expanding properly although otherwise normal. As this invites disease, he emphasizes the necessity for training the apex to do its work properly, advocating medical gymnastics, breathing exercises and other measures capable of promoting the expansion of the lung, especially in the young.

Ether Anesthesia by the Rectum.—Monod has applied this technic in thirty cases and the results were so fine that he commends it as a reliable method when conditions indicate this technic. He never had any accident or incident in his thirty cases while the security and tranquillity of the patient were most propitious for the operation. There were never any by-effects more than from any enema, while this technic seems to avoid the cardiopulmonary reflexes, the congestion of the lungs and the nausea. The ether was administered by a nurse, beforehand, like an ordinary enema.

Progrès Médical, Paris

Nov. 16, 1918, 33, No. 46

*Hexamethylenamin by the Vein in Septicemia. H. P. Achard.—p. 385.
*Camphor in Influenza. J. Narich and P. Burgeat.—p. 386.
Care of the Sick and Wounded on Ships. Cheyrou.—p. 387.

Hexamethylenamin by the Vein in Septicemia.—Achard reports giving hexamethylenamin intravenously every day for several days in seven cases of septicemia after war wounds. The diuretic action was constant, progressive and durable, and no complications on the part of the liver or kidneys developed. His dose was always 5 c.c. of an aqueous solution containing 0.25 of the drug per cubic centimeter, prepared cold, with intermittent sterilization (tyndallization).

Camphor in Influenza.—Narich and Burgeat laud the efficacy of subcutaneous injections of camphorated oil in treatment of influenza, especially the bronchopulmonary forms. They gave from 2 to 6 gm. per day.

Revue de Médecine, Paris

November-December, 1916, 35, No. 11-12, Published December, 1918

*Glycemia in Diabetics and Renal Diabetes. R. Lépine.—p. 663.
*Response to Electric Stimulation of the Internal Ear. L. Bard.—p. 675.

*Early Teaching of Medicine at Strasbourg. R. Mourgue.—*p. 691.*
*Psychophysiopathic Syndromes. M. Dide.—*p. 697.*
*Parasitic Hemoptysis. M. Salomon and R. Neveu.—p. 707.
*Edema Fluids. E. Cottin and C. Saloz.—p. 720.
*Traumatic Epilepsy. R. Benon and G. Lerat.—*p.* 734.

Glycemia in Diabetics and Renal Diabetes.—Lépine declares that the generally accepted idea that the sugar *content* of the blood is abnormally high in diabetes is erroneous. It is based on determination of the sugar *content* only in grave cases, with complications. Many diabetics have less than 2 per thousand sugar in the blood, which is within normal range. Glycemia, consequently, is not necessarily an essential element of the clinical picture in diabetes. On the other hand, the permeability of the kidneys for sugar may become increased under different circumstances and the result is what we call renal diabetes. This seems to be of common occurrence in pregnant women. Experimental research indicates that nervous disturbances may be responsible for it or an upset in the endocrinous glands. He describes a number of instances of renal diabetes, without any signs of true diabetes, occurring in persons with chronic or long healed nephritis, or in the young in conditions like those with albuminuria of adolescence only that they presented glycosuria instead of the albuminuria. In two women inclined to hysteria, slight intermittent glycosuria alternated at times with albuminuria, depending on the diet. The glycosuria in one was always accompanied by polyuria. In other cases in apparently healthy persons, the glycosuria was only occasional and never very pronounced, while the sugar content of the blood was always below normal. An alimentary influencing of renal diabetes is nearly always unmistakable.

Deviation of the Head Under Electric Stimulation.—Bard reports the results of study of what he calls voltaic inclination, in normal subjects and with hemiplegia. Some of his previous conclusions on the sense of gyration were described in these columns, Nov. 23, 1918, p. 1780. He here describes some further laws he has worked out.

A Pioneer Medical Philosopher.—Mourgue cites from the works of Schützenberger, a Strasbourg professor of pathology in the last century, which prove that he was a pioneer in many fields of medical thought which are now common property. We forget those who blazed the way for the rest of us.

Psychophysiopathic Syndromes.—Dide refers to the contractures, etc., which have developed after a war wound in persons inclined to hysteria. A tendency to mental weakness and a shrinking from anything liable to induce pain are important factors, supplemented by a weakness in will power. All physicians who have anything to do with war wounds must repeatedly impress on themselves anew that joints grow stiff and useless when not used, and the will power and the brain grow stiff and useless unless inertia can be overcome. A phobia of pain, plus a condition of mental and motor weakness, favor the functional incapacity, and suggestion, created by habit, systematizes it. Secondary trophic or vasomotor disturbances then intervene to stabilize it.

Parasitic Hemoptysis.—Salomon and Neveu were impressed by the frequency of hemoptysis in troops and workmen from Indo-China and other Oriental countries, but they found that the hemoptysis did not mean the same in these men as is the rule elsewhere. Every bronchitis in an Asiatic that drags along and is accompanied by blood in the sputum, calls for hospital care and strict disinfection of the sputum, as it is liable to contain the eggs of the *Paragonimus westermanni* or *Distoma ringeri*. They insist that the discovery of distomatosis of the lungs is a warning to deport the patient if his condition permits sending him back to his home. These are the only means to prevent the development of foci of endemic distomatosis.

Edema Fluids.—When the edema is the result of kidney disease, the edema fluid shows the effects of dyscrasia—hence there is no reason for the fluid to be rich in proteic substances. When the edema results from heart disease, the fluid accumulates under mechanical influences only. It is the result of stasis, like the transudates, which have a higher albumin content than that of a fluid which is derived from a change in the composition of the blood. The study of the edema fluid thus reveals whether the kidneys or the heart are to be incriminated, and whether it is a question of compression or cachexia.

Traumatic Epilepsy Plus Hemiplegia.—Benon and Lerat report a case of epilepsy after a skull wound, with complicating delirium with hallucinations, transient mental confusion and functional hemiplegia. The case confirms what the war wounds are teaching more and more, namely, that the majority of cases of general epilepsy, such as used to be called essential epilepsy, all belong in the same category with the rest, namely, symptomatic epilepsy.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 23, 1918, **48,** No. 47

*Perforation of Tuberculous Mesenteric Glands. H. Iselin.—p. 1569.
Correct Operation for Inguinal Hernia. A. von Mutach.—p. 1573.
*Rupture of Recurring Hernia. J. Dubs.—p. 1578.
The Cerebrospinal *Fluid at Different Periods of Syphilis.* G. Cornaz. —p. 1584.

Dec. 7, 1918, **48,** No. 49

Treatment of *Influenza.* R. Massini.—p. 1633.
*Improved Technic for Vital Staining. B. Roman.—*p.* 1638.

Perforation of Tuberculous Mesenteric Glands.—*Iselin lists* among the conditions which may simulate acute appendicitis: perforation of stomach or bowel, gonococcus inflammatory lesions, tubal abortion and intra-abdominal menstruation, but devotes this article to perforation of tuberculous mesenteric glands. The resulting clinical picture deceptively simulated acute appendicitis in his eight cases of the latter. Four of the patients were children of 4 to 10 and the others were young women from 17 to 24. All recovered and one of the children was recently reexamined and found clinically normal. The amount of irritation of the peritoneum determines the symptoms. Even sterile pus, such as was found in one boy of 6, induces severe peritonitis. Softening and perforation can occur in mesenteric glands as well as in glands in the neck, and mixed infection is liable. It is perhaps surprising that tuberculous mesenteric glands do not suppurate and perforate oftener. Roentgen exposures promote and hasten the softening of tuberculous glands, hence suppurating mesenteric glands should not be exposed to them. Hyperplastic glands benefit by the exposures, but the danger of perforation is imminent when suppurating glands are exposed. He had one case in which roentgen treatment of tuberculous peritonitis was followed by a tuberculous ulceration in the bowel rupturing into the open abdomen. There is a possibility that tuberculous peritonitis starts with perforation of a softened gland. The way in which the nodules are usually distributed seems to sustain this assumption. The similarity of the clinical picture with perforation of a gland and with acute appendicitis is an advantage as it brings prompt operative intervention.

Meckel's Diverticulum in Hernia.—The inguinal hernia developed through the cicatricial tissue from two former hernia operations, and Meckel's diverticulum projected from the lowest point of the large hernia. It was gangrenous from incarceration in the opening in the skin. The patient was a man of 79 and the rupture had occurred suddenly while he was pitching hay.

Vital Staining of Elastic Fibers.—Roman describes research with a substance which stains a rabbit violet although outside of the animal it does not look nor behave like a stain. It is a modification of atophan, thienyl-chinolin-carbonic acid, and seems to affect chiefly the elastic fibers, especially those of the vessels. A violet stain can be isolated from the urine of the animals. Fifteen pages are devoted to analysis of the findings with this vital staining and comparison with them of similar research by others.

Pediatria, Naples

December, 1918, **26,** No. 12

Variations in Opsonic Index during Vaccine *Therapy of* Typhoid.—A. Corica.—*p. 665.*
*The Abderhalden Reaction during First Month of Life. G. *Caronia.* —*p.* 675.

The Abderhalden Reaction in Infants.—*Caronia* examined the serum *of thirty infants* less than a month *old,* seeking for antiplacenta ferments like the protective ferment found in the blood of pregnant women—Abderhalden's pregnancy reaction. He applied Abderhalden's original technic, and obtained a positive response in all of the nine that were less than 6 days old, and in all but two of the seven that were from 6 to 10 days old. Above this age the response was positive *only in* three of the seven tests.

Policlinico, Rome

Dec. 8, 1918, **25**, No. 49

*Diagnosis of Pseudopleuritic Pneumonia. D. De Sandro.—p. 1189.
*Bronchopulmonary Spirochetosis. G. Dragotti.—p. 1198.
Preliminary Treatment of Fractured Jaw. V. Duca.—p. 1205.

Dec. 15, 1918, **25**, No. 50

Famine Edema on Eastern Coast of Adriatic. G. Pighini.—p. 1217.
*Metastatic Abscess in Thyroid. P. Caliceti.—p. 1219.
To Outline Stomach by Percussion. C. Marchese.—p. 1223.
The Cerebrospinal Fluid with General Paralysis and Syphilis of the Nervous System. *G. Sabatini.*—p. 1230.

Pseudopleuritic Pneumonia.—De Sandro reviews the present status of what he calls *splenopolmoniti,* and tabulates the findings as compared with those with true pleurisy with effusion. With the former, the left lung is predominantly affected, and the subjects are usually males. The onset is sudden and the course takes from three to seven weeks; the disease only gradually reaches its height and as gradually subsides. The fever is higher and the pain more intense than with true pleurisy. The patient lies on either side, while with true pleurisy he lies on the side affected. The dulness does not change its position.

Spirochete Bronchitis.—This disease to which Castellani called attention in 1904 has been encountered since in both the old and the new world. It may appear in an acute form as a simple bronchitis with fever and bloody sputum or it may assume a chronic form, but the general condition is not much impaired as a rule. Violle has encountered cases in which the bronchial secretion reached a liter a day. Spirochetes abound in the sputum. Castellani has suggested tartar emetic in treatment but symptomatic measures alone are the general reliance.

Thyroid Abscess.—In the case described the abscess in the thyroid was a metastasis from pyemic otitis and *mastoiditis,* but there was no thrombosis in the transverse sinus. A *few* days after the first symptoms of the thyroiditis a clinical picture developed suggesting certain features of exophthalmic goiter, but these all gradually subsided after the abscess had been cleared out. The streptococcus was cultivated from both the thyroid and the mastoid pus.

Riforma Medica, Naples

Nov. 23, 1918, **34**, No. 47

*True Neuro-Arthropathies. E. Aievoli.—p. 930.
*Simultaneous Determination of Sulphuric Acid and Phosphoric Acid in Urology. E. Pittarelli.—p. 934.
Factitious Dermatoses. A. de-Bella.—p. 936.
Referendum on Influenza. D. Barduzzi and others.—p. 939.
Diagnosis of Trauma of the Spine. E. Aievoli.—p. 942.

Nov. 30, 1918, **34**, No. 48

The Prevailing Pandemic. G. Saccone.—p. 950.
*Acute Meningitis Without Bacteria. G. Costantini.—p. 955.
Intravenous Injections of *Phenol* in Treatment of Influenza. S. Orlando.—p. 958.
Treatment of Influenza. A. Jona.—p. 959.
Italy and the History of Anatomy. A. Anile.—p. 962.

True Neuro-Arthropathies.—Aievoli's patient is a man of 58 with tabes and hydrarthroses of both knees. He ascribes it to the hypotony due to the tabes, analyzing similar cases described by others.

Determination of Sulphates and Phosphates in the Urine.—The method of research described is based on the fact that in urine treated with magnesia *usta* all the phosphoric acid is precipitated, while the filtrate contains the sulphuric acid which can then be estimated by a color reaction with hydrochloric acid, as is described in detail.

Acute Meningitis.—Costantini reports some recent cases of epidemic meningitis in which the cerebrospinal fluid seemed to be free from bacteria, but contained numbers of large mononuclear cells.

Rivista di Clinica Pediatrica, Florence

November, 1918, **16**, No. 11

*Tracheobronchial Glandular Disease. E. Podestà.—p. 561.
*Unilateral Horse-Shoe Kidney. A. F. Canelli.—p. 577.
*Salt Fever in Infants. A. Spallicci.—p. 583.

Symptoms with Tracheobronchial Disease in Children.—Podestà remarks that there are no pathognomonic symptoms early in tracheobronchial glandular disease in children, but when a child fights against being examined, its *manner of* breathing is instructive. Disease in these glands is frequently overlooked in docile children who submit calmly to examination. The child should be disrobed; this may reveal tuberculids or an eruption throwing light on the differential diagnosis. It may also reveal enlarged and congested veins at some point, suggesting pressure on the veins from an enlarged gland. Any tendency to varicose veins or edema is instructive, as also any tendency to dyspnea, or breathing suggesting asthma. The expansion of the chest on this side *may* not equal that on the sound side. A tendency to asymmetry can be detected more often than the textbooks admit. As an infant cries or screams, the middle portion of the supraclavicular regions may protrude. This is still more evident when the child holds its breath as it fights those examining it, but it is most pronounced when the child coughs, especially when the coughing is spasmodic as often occurs with diseased tracheobronchial glands. This supraclavicular *protrusion* is usually transient, occurring only during the phase of *expiration,* and especially when this is forcible, as during a spasm of coughing, or when the child tries to sit up in bed *while* an adult prevents this by putting his hand on the child's head. *There is* no protrusion when the child is tranquil, or during *inspiration.* The protrusion is usually but not always bilateral, and the most pronounced protrusion may be on the side *in which the* glands most closely approximate normal. The apex of the lung seems to be responsible for this bulging of the region over *it.* There is probably more or less emphysema in the apex and superior lobe *in general,* and an increase in the intrathoracic pressure, owing to the *enlarged glands, and* these are manifested by this bulging. In one case *the* necropsy findings confirmed the assumptions based on this transient protrusion of the chest wall. Before accepting it as a sign of tracheobronchial adenopathy, all other affections *liable to* induce emphysema have to be excluded. Its appearance only on one side is significant, as the glands involved are usually those linked on one side, and mostly on the side of the lung focus, if there is one.

Horse-Shoe Kidney on One Side.—The anomaly was a postmortem surprise. The *young* soldier had succumbed *to* a war wound of the liver and the *single kidney* was found 15.5 cm. long by 9 cm. wide. It was turned back on itself so that this elongated unilateral kidney presented the outline of a horse shoe. There was *some malformation* also of the vena cava.

Salt Fever in Infants.—Spallicci reviews *the literature* on this subject and gives the findings in a number of infants. Everything testifies to the fact that there is no febrile reaction to subcutaneous injection of 40 or even 60 c.c. *of* 0.85 per cent. saline when *it has been* thoroughly sterilized for at least an hour in the *autoclave. On the other hand,* even 20 c.c. will send up *the* temperature when the *saline has* not been sterilized properly.

Anales de la Facultad de Medicina, Lima

July-August, 1918, *2*, No. 4

The Phenolsulphonephthalein Test for Estimating Renal Function. M. A. Valesquez.—p. 1.
*Peruvian Verruga. O. Hercelles.—p. 10; J. Arce.—p. 24.
Present Status of Treatment *of* War Wounds. E. Bello and M. Castañeda.—p. 53.
Traumatic *Diaphragmatic* Hernia. L. de la Puente.—p. 77.
Psychoanalysis. H. F. *Delgado.*—p. 90. Cont'n.

Peruvian Verruga.—Hercelles describes the important part played by the spleen in this disease, from the first stimulation to exaggerated functioning as a *defensive* reaction, with intense phagocytosis, *then* aiding in repairing the injury to the blood, and finally *returning* to the rôle of the fetal spleen, such as *Dominici* has described. Several fine colored plates show the different phases of *this* intense functioning on the part of the spleen, the necessary congestion as also the complications of a septicemic nature. With the former, fibrous transformation finally ensues; with the latter, infarcts develop. The spleen thus plays the leading part among the organs in this disease. Arce describes the clinical course, pathology and treatment of the malignant form of Carrion's disease. He advocates intravenous injections of neo-arsphenamin, every four or five days, in doses not over 0.2 or 0.3 gm. to a total of three or four doses. The patient's strength should be kept up with a light liquid or semiliquid diet, and epinephrin, camphorated oil, etc., should be given as needed, but purgatives, diaphoretics and antipyretics should be absolutely avoided. *In no disease is this latter rule more important than* in Peruvian verruga in its malignant form.

Anales de la Facultad de Medicina, Montevideo

July-August, 1918, 3, No. 5 to 7

*The Paraglandular Organs. A. De Castro.—p. 269.
Biology of the Pus Cell in War Wounds. P. Delbet, N. Fiessinger and R. Clogne.—p. 295.
*Acute Gastritis with Cholecystitis. A. Navarro.—p. 322.
Anesthesia from Injury of the Thalamus. A. Ricaldoni.—p. 332.
Psychologic Conception of Dementia. B. Etchepare.—p. 355.
*Cholesterol Content of the Blood. C. B. Posse.—p. 394.
Acute Appendicitis. D. Prat.—p. 439.
Paraduodenal Hernia. N. L. Bloise.—p. 505.
Some Technical Points in Histology. E. P. Lasnier.—p. 512.

The Paraglandular Organs.—De Castro applies this term to the formations which accompany the endocrinous glands in the human body. They are of the same embryonic origin, and attain a certain degree of differentiation in their development, but they are generally regarded and classed as supernumerary accessory glands or aberrant glandular nodules. He is convinced that they represent a regular system, and are not merely anatomic curiosities, morphologic accidents, anomalies or rudimentary organs, as they have hitherto been described. They form what he calls the paraglandular system, an annex to the system of the glands of internal secretion. They represent an organic system in full evolution. This allows the interpretation of a number of contradictory facts which have hitherto baffled observers, and explains many phenomena in the human economy. Each of the endocrinous glands is liable to have its paragland, as also possibly the epiphyses. There are also abdominal paraganglia, such as the organs of Zuckerkandl and the cardiac paraganglia described in 1906 by Wiesel and Wiesner. The carotid gland is not exceptional but occurs bilateral in nearly every one. Other paraganglia with chromaffine tissue are found along the sympathetic. Luschka's coccygeal gland is not chromaffine and hence does not belong to the paraglandular system. He reviews each member of the system in turn, with evidence from comparative anatomy and physiology to sustain his views.

Acute Gastritis with Cholecystitis.—Navarro reports four cases in which severe gastritis developed suddenly, resembling the toxic gastritis under chloroform. As the patients vomited they felt a vague and diffuse pain in the region of the epigastrium but the complaints were mainly of a smarting in esophagus and throat, almost as if the vomit were burning the tissues. The patients were all adults, and the evidences of serious toxic action were soon apparent as the strength rapidly declined. The rapid pulse and cold extremities in one case suggested rupture of a tubal pregnancy, as the menses had been suppressed for two months and there was right salpingitis. The temperature was not high in any case and the clinical picture soon improved in one case but in the others it was alarming. In one patient the gastritis recurred. In three cases there was a history that suggested gallstone disease in the past, and the operation confirmed that cholecystitis was responsible for the secondary toxic gastritis. This was beyond question also in the other case, but the age (83) precluded an operation. The severe gastritis in each case was conquered by rinsing out the stomach, with ice to the epigastrium. Soon all pain in the stomach and other disturbances subsided but this left the dull ache in the gallbladder. Cholecystitis is thus able alone to set up a severe toxic gastritis, but the cholecystitis itself may be secondary to an old appendicitis or to puerperal infection. Navarro queries whether the gastritis in these cases is due to exceptional toxicity of the contents of the gallbladder or to nervous influences. Two of the cases reported were in brothers.

Cholesterol Content of the Blood in Health and Disease.—Posse discusses the biologic rôle of cholesterol in physiologic and pathologic conditions. It seems evident that the presence of toxic substances in the blood entails abnormally high arterial blood pressure, with cholesterolemia as a defensive reaction. Colesterol is not readily soluble and consequently precipitates form from it. These precipitates infiltrate the walls of the vessels at certain points, producing permanent changes in them, modifying the lumen and the elasticity of the vessel walls. Certain states favor this precipitation and others oppose it; thus Lemoine has noted that arteriosclerosis is comparatively rare in the obese. He ascribes this to the solubility of cholesterol in fats. Inversely, Remlinger suggests that retention of semen, so rich in cholesterol, would tend to favor development of arteriosclerosis. The therapeutic conclusion is evident that the introduction or retention of toxic substances in the organism stimulates to hypercholesterolemia and hence to arteriosclerosis. Lemoine consequently repudiates iodids and nitrites in treatment as aggravating the condition one is seeking to remedy. In chronic nephritis and in cholelithiasis, factors raising the cholesterol content of the blood increase the tendency to production of concretions. This tendency should be warded off, Navarro explains, by the diet, keeping the intake low of fats and other substances liable to augment the cholesterolemia. This should be borne in mind in chronic kidney and gallstone disease, in gout and in the pregnant. Chauffard has reported the case of a woman with mild tuberculosis put on a diet of eleven eggs a day, and in three months there was an attack of gallstone colic with jaundice. On the other hand, it may be advisable to increase the cholesterol content of the blood as an aid in combating toxi-infections. Cholesterol itself could be given, an ethereal extract by the mouth, along with foods rich in cholesterol, including butter. Production of cholesterol might also be stimulated by suprarenal and corpus luteum treatment. The conditions in which cholesterolemia has been intentionally promoted, as a therapeutic measure, to date are pernicious anemia, exophthalmic goiter, certain forms of tuberculosis with hypocholesterolemia, and in the acute period of infectious diseases.

Cronica Medica, Lima

September, 1918, 35, No. 663

*Alcoholic Cirrhosis. E. Odriozola.—p. 254.
*Echinococcus Cyst in Lung. A. Corvetto.—p. 257.
Present Status of Drainage in Gynecology. M. O. Cruzado.—p. 262.
Epilepsy and Endocrinopathies. E. F. Sanz.—p. 267.
Pathologic Anatomy of the Spleen. O. Hercelles.—p. 272. Cont'n.

Cirrhosis of the Liver.—Odriozola reports the case of a man of 34 with alcoholic cirrhosis of the liver and ascites. At the first tapping over 11 liters of ascitic fluid were withdrawn. As the liver and spleen were much enlarged, the prospects for a cure were better than with the atrophic type of cirrhosis. In these cases the ascitic fluid has to be withdrawn often, without waiting for large amounts to accumulate. An indispensable element in the cure is abstention from alcohol and likewise the staying in bed as long as the tendency to ascites persists. Odriozola regards this as of vital importance. Being up and about is painful and prolongs the disease. It is thus possible to watch over the patient better and supervise his diet. The diet was selected to avoid purins, milk at first, with, later, starch dishes and cooked vegetables. The bowels are kept open with mild laxatives, and organic iodin preparations are given in small doses. Under these measures the man in the case reported was discharged in good condition in three months.

Echinococcus Disease of the Lungs.—Corvetto describes two new cases which confirm that there are no pathognomonic symptoms of an echinococcus cyst in the lung, aside from discovery of the parasite in the sputum, but the roentgen rays may give the clue, locating the cyst and facilitating operative measures. He has encountered four cases of the kind and knows of two more at Lima, so the pulmonary form is not so rare as generally assumed. In one of the cases the symptoms and course simulated pulmonary tuberculosis until expulsion of the cyst membrane cleared up the diagnosis and put an end to the disease at one stroke. Hemoptysis with a tenacious cough and other pulmonary symptoms should not be labeled tuberculosis as a matter of course.

Gaceta Medica de Caracas

Nov. 15, 1918, **25**, No. 21

Early Diagnosis of Pregnancy. D. Lobo.—p. 221.
*Ambard's Ureosecretory Constant. E. M. Flegel, J. Iturbe and E. Gonzales.—p. 223.
Dangers of Pituitary Treatment. A. Turenne.—p. 230. To be cont'd.

Ambard's Ureosecretory Constant.—Flegel, Iturbe and Gonzalez extol the combination of the various measures in vogue for estimating potential renal functioning. The combination of different methods of exploration of the kidneys gives almost positively reliable information, as when nephrectomy is contemplated. The six methods of investigation described are the dilution test, the phlorizin test, chromoureteroscopy, the phenolsulphonephthalein test, the Ambard formula, and the application of the laws regulating the urea and the chlorids in the segregated urine.

Medicina Ibera, Madrid

Aug. 31, 1918, **4**. No. 43

*Early Diagnosis of Ectopic Pregnancy. R. B. de Bengoa.—p. 214.
Aphorisms on Therapeutics. V. de Castro.—p. 217.

Sept. 7, 1918, **4**. No. 44

Iodin in Therapeutics. IV. A. S. Alvarez.—p. 241.
A Spanish Surgeon of Columbus' Day. B. L. Diaz.—p. 244.

Sept. 14, 1918, **4**. No. 45

Technic for Circumcision. E. A. S. de Aja.—p. 269.
Otitis Media. J. S. Señan.—p. 270.
Malaria. B. G. Diaz.—p. 272.
Aphorisms. V. de Castro.—p. 273.

Early Diagnosis of Extra-Uterine Pregnancy.—Bengoa remarks that the condition of the breasts aids in early diagnosis of an ectopic pregnancy except when less than eighteen months have elapsed since a preceding pregnancy. The gravid tube is movable, and he has always found it more or less in its normal place. It is seldom enlarged to the size of two fingerbreadths, and it is not tender. Pain in the stomach, a little vomiting and transient fever may have been the only manifestations of an attack of appendicitis which has left an exudate fusing the organs together, including the tube or ovary or both. But this is seldom mistaken for a tubal pregnancy.

Semana Medica, Buenos Aires

Aug. 22, 1918, **25**, No. 34

The Damage from Boiled Milk. A. d'Alessandro.—p. 233.
Abdominal Tumors Simulating Cancer. C. A. Castaño.—p. 242.
Local Epidemic of Typhoid. E. Debenedetti.—p. 246.
Analysis of Dimethylamino-antipyrin. J. A. Sanchez.—p. 249.
Comparison of Symphysiotomy and Pubiotomy. T. A. Chamorro.—p 255.
Film Treatment of Burns. V. Defelice.—p. 262.

Aug. 29, 1918, **25**, *No. 35*

*Manifestations in Digestive Apparatus of Cardiac Insufficiency. J. R. Goyena.—p. 273.
Congenital Heart Deformities. M. Acuña and A. Casaubon.—p. 278.
Extracapsular Resection of Tuberculous Stiff Knee. Ceballos.—p. 281.
*Tuberculin Treatment. L. K. *Wimmer*.—p. 284.
Absorption of Iodin and Oil Preparation by Intramuscular Injection. J. Destéfano and J. R. Goyena.—p. 290.

Dyspepsia of Cardiac Origin.—Goyena analyzes a typical case in which failing compensation of a valvular lesion was accompanied by a set of symptoms on the part of the stomach, overshadowing the heart disease and long treated for dyspepsia only. In such cases the symptoms are vague and diffuse, oppression and distention in the stomach region, a dull ache, with occasional vomiting. There is always retention of chlorids, even without edema, the chlorid content of the blood being always above normal. Hematemesis is an important symptom, or there may be merely occult blood in the stools or vomit. All these manifestations on the part of the stomach are the result of defective circulation from insufficiency of the myocardium. It is felt also in the liver, the stools showing the insufficiency of the liver. The diagnosis of the cardiac origin of the gastric disturbances is confirmed by the striking effect of treatment directed to the heart alone. The first thing is to reduce the work of the heart. This he accomplishes with a purgative; one like sodium sulphate which is not readily absorbed but acts at the same time on the liver. The patient should be kept on milk alone for a time. This not only facilitates digestion but has a diuretic action. This reduces the minimal tension, while the maximal tension is raised by giving some heart tonic, digitalis or strophanthus. The subsidence in two or three days of all the symptoms of dyspepsia confirms the cardiac origin. "The patient," he says, "enters the physician's office a *gastrico* and leaves it a *cardiaco*, with all that that implies."

Tuberculin Treatment.—Wimmer gives the details of twenty cases of different forms of tuberculosis to illustrate the excellent results that can almost be counted on with tuberculin treatment as an adjuvant to the usual measures. The mode of reaction in each patient should be carefully studied and the tuberculin gaged accordingly. The greater the reaction, the more cautious should be the dosage of the tuberculin. The most promising cases are those in which there is an intense reaction but without modification of the pulse, in which the congestion and the fever yield to small doses, and the weight shows a very slow but progressive increase.

Siglo Medico, Madrid

Oct. 5, 1918, **65**, No. 3382

*What the Hospital Should Be. J. F. Rodriguez.—p. 809.
Early Diagnosis of Appendicitis. L. Cardenal.—p. 811. Conc'n.
Referendum on Influenza. J. Ubeda Correal and others.—p. 812.

Oct. 12, 1918, **65**. No. 3383

*Surgical Sequelae of Influenza. Iñigo.—p. 829.
*Sugar in Pulmonary Tuberculosis. G. Pittaluga.—p. 831.
Incompatibility of Quinin and Aspirin. R. S. de Santa Maria.—p. 833.
Referendum on Influenza. A. P. Fernandez and others.—p. 834.

What the Hospital Should Be.—Rodriguez protests against building hospitals with marble halls, etc., to defy the centuries. They should not be expected to last very long, only long enough to serve for the care of the sick with the means available during the epoch in which they are living.

Surgical Sequels of Influenza.—Iñigo remarks that almost the only sequels of influenza which require surgical intervention are pleural effusions. In the effusions examined at Madrid, a streptococcus was found in large numbers, in pure culture. For this and other reasons he made a point of puncturing and draining at once on suspicion of a pleural effusion, purulent or not, and the results were surprisingly gratifying, as he relates in detail.

Sugar in Treatment of Tuberculosis.—Pittaluga describes the theoretic and experimental bases for intramuscular injections of saccharose in treatment of pulmonary tuberculosis, and reports the case of a young woman with pronounced pulmonary lesions, living in unhygienic surroundings, whose condition was favorably transformed by a series of injections of 10 c.c. Reduction of the local manifestations and a certain degree of euphoria were thus realized by this measure. It seems destined to prove a useful adjuvant to the usual means of treating the tuberculous. More than this should not be expected of it. (See *page* 313.)

Gann, Tokyo

October, 1918, **12**, No. 3

*Research on Rat Cancer. N. Umehara.—p. 31. To be cont'd.
Metastasis of Chicken Sarcoma. K. Tadenuma.—p. 37.
*Miostagmin Reaction *with* Chicken Sarcoma. K. Tadenuma.—p. 38.
*Malignant Transformation of Fibroma in Mesentery. I. Miwa.—p. 39.

Malignant Transformation of Transplanted Benign Tumor.—Umehara reports that he has succeeded in cultivating a transplantable sarcoma from a benign adenofibroma. The spontaneous benign tumor, about as large as a walnut, was found on the breast of a white rat. In structure it closely resembled human adenofibroma and scraps and emulsions from it were injected in 423 rats, with the development of a large tumor in 144 of the animals. By this means he was able to study the conditions of evolution and growth of the neoplasm through entire generations. In different series of experiments he studied the effect of mechanical, thermic and chemical influences on the transplants. In this instalment of his report he says that he has carried the research to the fourteenth generation. In the early generations about 90 per cent. of the transplants gave positive results, while this has declined to 15 per cent. in the later generations. He refers to the transformation to sarcoma only in the heading to his article, which is to be continued.

Miostagmin Reaction with Hen Sarcoma.—Tadenuma states that the miostagmin reaction was seldom positive before the twentieth day after the tumor-grafting operation. Later than this it was almost invariably positive, but veered to negative again after extirpation of the tumor.

Malignant Transformation of a Fibroma in the Mesentery.—The man of 56 had long had a movable tumor in the left side, about as large as a goose egg. It suddenly began to enlarge and proved fatal in less than two years. It proved to be a fibroma in the root of the mesentery which had undergone malignant degeneration with extensive metastasis. The illustrations show that the tumor had developed a fibrosarcoma and also a *myxofibroma*.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 26, 1918, **2**, *No. 17*

Is Mutation or Crossing the Cause of Evolution? J. P. Lotsy.—p. 1395.
*Dextrocardia. J. W. M. Indemans.—p. 1405.
*Light Phenomenon Through Closed Eyelids. T. Wassenaar.—p. 1412.
Syphilitic Hepatitis. J. Exalto.—p. 1413.
Aneurysm of Descending Aorta. G. van Heck.—p. 1417.

Nov. 2, 1918, **2**, No. 18

*Absorption of Nitrogen from Food. E. C. van Leersum.—p. 1464.
*Hypertrophy of the Prostate. C. W. G. Mieremet.—p. 1474.
Separate Organization of Specialists in relation to National Medical Organization. H. G. Hamaker.—p. 1482.
Case of Quincke's Edema with Irritation of Vagus. Koster.—p. 1485.

Dextrocardia.—Indeman reviews what has been published on congenital dextrocardia or situs cordis inversus, and reports a case in a young man and in the young man's mother's brother. This is the first case of familial dextrocardia on record, he believes.

Visual Phenomenon Through the Lid.—Wassenaar calls attention to the flash of bright red light which one sees when one eye is entirely covered and the other eye is alternately rapidly covered and then exposed to a moderate light, the eyelid closed. He theorizes that the visual apparatus reacts to a stimulus at the first beginning differently from the way it reacts a moment or two later.

Utilization of Protein in the Food.—Van Leersum tabulates the results of research which explain the conflicting findings of different investigators with coarse bread, as they demonstrate that the absorption of nitrogen depends on the length of time the food remains in the bowel. Persons with lively peristalsis pass it on so quickly that all the nitrogen does not get digested and assimilated, while others with a tendency to constipation get a chance to utilize it to the last particle.

Hypertrophy of the Prostate.—Mieremet presents a number of arguments to sustain the assumption that the hypertrophy of the prostate is due primarily to the action of a hormone from the testicles. If the hypertrophy were merely a tumor, then we might expect it to occur at any age, while in fact it affects almost exclusively men at a certain age. The phenomena observed with roentgen exposures of testicles and prostate also sustain his assumption. He thinks that not enough attention has been paid to the internal secretion of the testicles as a factor in enlargement of the prostate, and urges research on the testicles in cases of hypertrophied prostate.

Nordiskt Medicinskt Arkiv, Stockholm

November, 1918, **51**, Surgical Section No. 3-4

*Experiences with Surgery of the Ureters. G. Nyström.—p. 109.
*New Urethra Formed from Saphenous Vein. C. Adlercreutz.—p. 163.

Ureter Surgery.—The surgical section of the *Nordiskt Medicinskt Arkiv* has a name for itself now, the *Arkiv för Kirurgi*, and the articles in it are published in the language the writer prefers; Nyström's article is in German. He describes a large number of unusual operations on the ureters; one for stenosis from appendicitis. In one case he bridged a gap in the ureter with a plastic operation, utilizing a strip from the abdominal wall.

Plastic Operation for Hypospadia.—The man of 58 with complete hypospadia was operated on at one sitting; the new urethra being made from a segment cut from the internal saphenous vein. The man had been brought up as a girl to the age of 23, and had been twice married, but had no children. The graft of the vein proved finally successful after several mishaps, including stenosis requiring excision of the stricture. Cystitis developed and epididymitis, and a calculus had to be removed from the urethra. It had formed around a scrap that had broken off from the retention catheter. Internal urethrotomy was also required. The vein proved to be smaller than had been anticipated, but the final urethrotomy remedied this. Adlercreutz compares with this the other methods of treating complete hypospadia. Unless the new tube is made wide enough, the patient will never be freed from his perineal fistula or it breaks out anew if it heals, whatever the method employed. A tube should be provided as wide as the patient's posterior urethra, that is, allowing the passage of a No. 23 or 24 Charrière. This patient still keeps up the dilatation with a catheter of this size a few times during the week, and his condition is highly satisfactory.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1918, No. 5

Prophylaxis of Plague. W. J. van Gorkom.—p. 1.—p. 72.

Ugeskrift for Læger, Copenhagen

Nov. 14, 1918, **80**, No. 46

*Perforated Gastric and Duodenal Ulcers. H. Hertz.—p. 1801.

Perforated Gastric and Duodenal Ulcer.—Hertz devotes twenty pages to the tabulated details and outcome in 60 cases of perforated gastric or duodenal ulcer in the last few years at the public hospital at Copenhagen. The age of the patients ranged from 16 to 75; only 17 were women. In two fifths of the 13 duodenal ulcer patients no preceding symptoms had been noted before the perforation. The absence of dulness over the liver is an important symptom of the presence of air in the abdominal cavity, but in 12 of the cases the liver dulness was practically unmodified. In about 50 per cent. of the cases transient vomiting occurred at the time of the perforation. Two patients presented two perforations and in several cases necropsy showed other ulcers besides the one that had perforated. Petren has reported several ulcers present in 27 per cent. of his cases. The amount of fluid escaping into the abdominal cavity seems to be comparatively immaterial; some of the patients with the larger amounts recovered. In 12 of the patients the peritoneal contents developed cultures, in all but one of the staphylococcus; 7 of these patients died. At necropsy in all the fatal cases the suture of the perforation had held perfectly; death was due to complications elsewhere. No attempt was made to excise the ulcer in any case. Petren and Rovsing advocate excision, and have reported the recovery of all in their later series of 12 duodenal ulcer perforation cases, including 3 with a chronic fistula and no acute perforation. In only 17 of Hertz' 60 cases was the diagnosis correct when the patient was sent to the hospital; appendicitis was the usual assumption. The outcome of operative treatment was recovery in 75 per cent. of the 19 with a delay of six hours or less; 66 per cent. recoveries among the 12 with interval of from six to twelve hours after the perforation, while only 20 per cent. recovered of the 22 with a longer interval than this. The total mortality was thus 27 out of 53 operative cases, over 50 per cent. He adds that the temperature is not of moment, but a pulse under 90 or 100 is a favorable sign as also a sterile peritoneal fluid, and good general condition; all the patients with signs of collapse died, as also all those with distended abdomen. The operation should be done with the least possible delay and the field of operation should be walled off from the rest of the peritoneal cavity. The peritoneum should not be rinsed except in the cases seen late; and the same rule applies to drainage. Simple suture of the ulcer seems to be preferable to excision or gastro-enterostomy.

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THROMBOSIS OF THE CORONARY ARTERIES

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In a paper[1] on certain clinical features of sudden obstruction of the coronary arteries, read six years ago before the Association of American Physicians, I called attention to the fact that while such obstruction as by a thrombus was very often suddenly fatal, it was not necessarily so; for the coronary arteries were not in the strictest sense terminal arteries; there were often anastomoses capable of reestablishing circulation in the infarcted area to such an extent as to enable the heart to functionate for a time at least. This had been shown by anatomic study of the coronaries, by necropsy observations by the pathologists, by experimental ligation of these vessels, and by clinical experience controlled by postmortem examinations.

A tentative grouping of the cases of coronary thrombosis based on clinical symptoms was made:

1. Cases of instantaneous death, a group graphically described by Krehl, in which there is no death struggle, the heart beat and breathing stopping at once.
2. Cases of death within a few minutes or a few hours after the obstruction. These are the cases that are found dead or clearly in the death agony by the physician who is hastily summoned.
3. Cases of severity in which, however, death is delayed for several hours, days or months, or recovery occurs.
4. A group that may be assumed to exist embracing cases with mild symptoms, for example, a slight precordial pain ordinarily not recognized, due to obstruction in the smallest branches of the arteries.

It was Group 3 whose clinical phenomena were discussed, as illustrative of which a few cases were briefly cited, including one with necropsy findings.

These cases of coronary thrombosis are, as it seems to me, of commoner occurrence than is generally supposed, and that is the justification for repeating some of what was contained in the former paper and for adding reports of other cases and for touching on some recent experimental work that has a direct bearing on this subject.

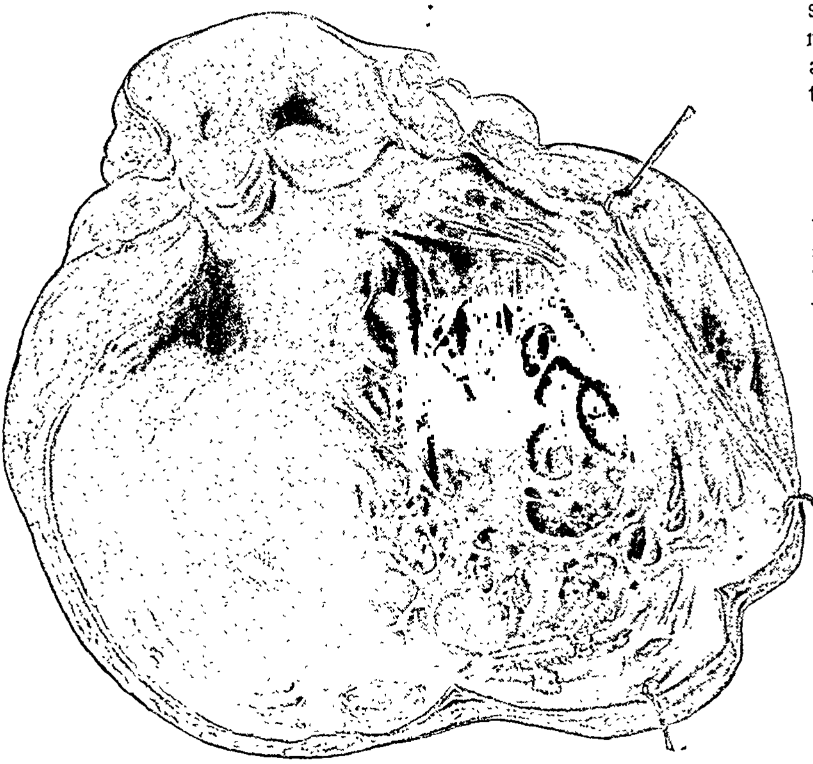

Fig. 1 (Case 3).—Changes on the endocardial surface of left ventricle.

CLINICAL SYMPTOMS

Most of the patients are middle-aged or elderly men. The heart and blood vessels in many show the evidence of arterial and cardiac sclerosis; the blood pressure may be high. In others no sign of such change is to be made out. In fact, in two of my three cases with necropsy, the only significant vascular sclerosis was in the coronary arteries, the hearts were of normal size, and there had been no hypertension during life. In one there was slight involvement of the beginning of the aorta. Previous attacks of angina pectoris may have been experienced. If this has been the case, the patient will describe the attack due to the coronary thrombosis as of unusual severity. Often there is no assignable cause for the attack such as is commonly noted in the typical paroxysmal angina—walking, a heavy meal, undue excitement, etc.—though in some cases these exciting factors seem to provoke the attack or, at least, greatly to aggravate it when it has started. The painful seizure is usually more enduring than in ordinary angina, the spell lasting many minutes or several hours, or a status anginosus developing. The location of the pain, as in the classical angina, is commonly substernal, with frequent radiation to the arms and neck. But in many of the thrombotic cases the pain is beneath the lower sternum or even in the upper epigastric region; and there may be no radiation to the arm or neck. This epigastric reference of the pain, with the nausea and vomiting that freqeuntly occur, often suggests to patient and physician some abdominal accident, such as acute pancreatitis perforation of the gallbladder, or a gastric or duodenal ulcer. And these suspicions are strengthened by the fact that there are so frequently signs of shock and collapse—ashy hue of the face, clammy skin, and small, rapid, feeble pulse.

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[1] Herrick, J. B.: Clinical Features of Sudden Obstruction of the Coronary Arteries, J. A. M. A. 59: 2015 (Dec. 7) 1912.

The heart is commonly rapid, even to 140 or more, though slow heart action has been recorded. There may be irregularities, such as extrasystoles or partial block. The pulse usually lacks in strength and may be almost imperceptible, though in some cases the strength is wonderfully well preserved. Blood pressure is lowered, and tends to grow lower in the unfavorable cases. The heart tone may be startlingly faint, both because of the weakness of the heart's musculature and because of an acute emphysema that may develop and mask the heart sounds. Over the infarcted area a pericardial friction is sometimes heard. The heart may reveal evidence of dilatation by its increased area of dulness and its mitral systolic murmur due to relative insufficiency of the valve. Râles in the bronchi, with other evidence of pulmonary edema, may be present. Passive congestion of the kidney may show in a trace of albumin in the urine. In some cases, cardiac edema of marked degree appears, the albumin being large in amount, the legs badly swollen, and free fluid being present in the abdominal cavity. The mind is commonly quite clear. I have been surprised at the preservation of bodily strength that is often manifested. Patients occasionally walk about within a few hours after such a seizure, and within a few days may be outdoors trying to attend to business.

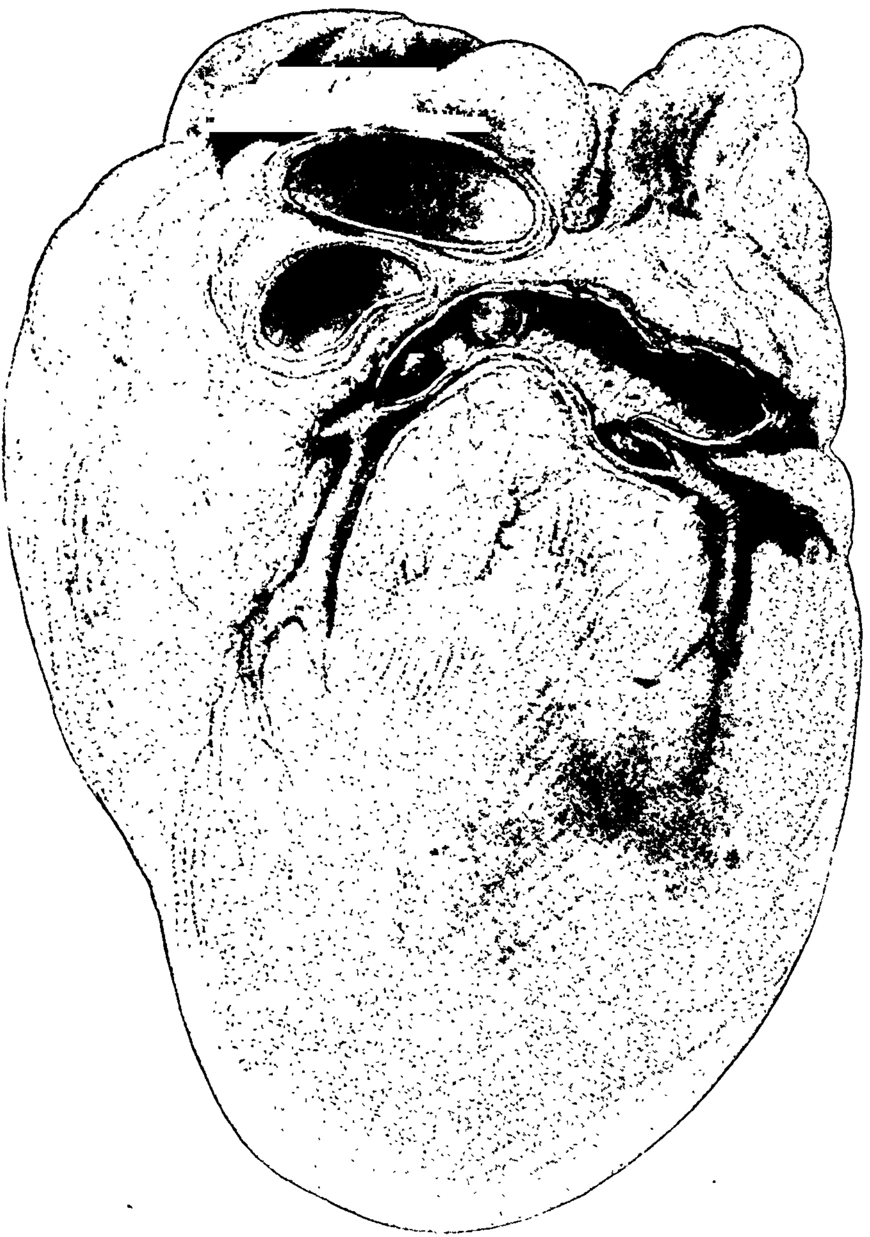

Fig. 2 (Case 3).—Site of thrombi and fairly normal external appearance of heart.

These symptoms will often enable one to make a reasonably certain diagnosis of acute obstruction of the coronary artery. As in so many other conditions, the first essential is to think of this condition as a possibility and to rid the mind of the notion that such a diagnosis is possible only at necropsy.

In the following three cases the diagnosis was confirmed by necropsy. In the first instance, the first I had ever recognized clinically, the diagnosis was decidedly tentative nad hesitating. In the other two, as well as in several in which no necropsy has been permitted or in which the patients are still living, diagnosis has seemed definite, as clear, for instance, as in most cases of obstruction of a cerebral vessel. I give very brief abstracts: Case 1 is reported more in detail in the article of six years ago.

REPORT OF CASES

Case 1.—A man, aged 55, was seized with severe pain low in the chest and epigastrium. He vomited. The physician, believing, as did the patient, that the attack was of gastric origin, washed out the stomach; but relief came only with morphin. The man lived fifty-two hours. He was conscious to the last. His pulse from the first was rapid and very weak, the heart tones nearly inaudible. An acute emphysema with many moist râles developed. No abdominal or other than cardiac cause could be made out as an explanation of the condition. The temperature never was above 99.2 F. The left ramus descendens was found plugged by a thrombus at a narrow spot where there was a small pathologic mural roughening and thickening.

Case 2.—A man, aged 62, while walking on the board walk at Atlantic City, was seized with a terribly severe pain in the lower precordia. He was helped to the hotel, but refused to call a physician while in Atlantic City or for the next two days while in New York, for, as he said, he knew from the severity of the initial pain, the great weakness and difficult breathing, that he would be ordered to a hospital, and he wished to get to his home in Chicago for his illness and, as he feared, his death. He lived over two weeks from the onset of the attack. His heart when he reached Chicago was dilated, weak and somewhat rapid. His blood pressure became progressively lower. There were dyspnea, cyanosis and marked edema of the legs and albuminuria. Death was as in ordinary cardiac failure. Necropsy revealed recent plugging by a thrombus of the descending branch of the left coronary, with softening of the heart muscle at the left apex and the lower interventricular septum.

In this, as in the other case cited, the aorta was free from evidence of sclerotic change. No other vascular lesions were found than the isolated patches of sclerosis in the coronary. It happened also that in each case the patient had only a short time before been carefully examined by competent physicians and had been pronounced in good health as to heart, blood pressure, urine, etc.

Case 3.—A physician, aged 42, who had never suffered from angina pectoris, had no acute or chronic infection so far as he knew, and who regarded himself as free from cardiovascular and renal disease, was seized, while in this seemingly good health, with a sudden, excruciating pain in the lower sternal region, which pain radiated to the arms and to the epigastrium. He was profoundly shocked, very weak and nauseated, the skin cold and clammy, the pulse rapid and thready. His colleagues who saw him thought he would die in a very short time. Morphin was necessary to control the pain. After a time he rallied, and in ten days was able to be about and even tried to do some professional work. But in a few days his weakness, precordial distress on exertion, dyspnea and irregular, rapid and small pulse caused him to give up. He rested, again improved, and came to Chicago. He was seen by my assistants, J. R. Greer and F. M. Smith, who ventured a diagnosis of coronary obstruction, a diagnosis that I felt was correct when I saw him a few days later. Electrocardiograms taken on these two occasions gave support to these opinions, a point to which reference will be made later. Rest and small doses of digitalis were ordered, and improvement followed. The summer vacation was spent on an island, where there was considerable violation of the injunction as to quiet and digitalis, the patient not only eating very heartily, but not infrequently going on strenuous walks, fishing and hunting trips, even though precordial pain, occasional attacks of dyspnea, and cardiac irregularity gave warning that the heart was far from normal. From an unduly severe strain of this sort he suffered for several days with dyspnea and arrhythmia; he contracted an infectious bronchitis and hastened to Chicago, where, in a deplorable condition, he went under my care in the Presbyterian Hospital, Sept. 26, 1917. The dyspnea and cyanosis were marked; he was sleepless and had Cheyne-Stokes breathing; the temperature rose to 102. The blood pressure was not high, the heart was slightly enlarged to the left, and there was a faint systolic murmur at the apex. After four days he developed signs of pneumonia; the respiration rose to 32 and the temperature to 105; there were bloody and rusty sputum, marked albuminuria and leukocytosis; he became delirious, and just as a distinct drop in temperature and a clearing of the mind made one wonder if recovery after all might be a possibility, he died suddenly. Necropsy disclosed pneumonia of the lower lobe of the right lung and several infarcts in other portions of the same lung.

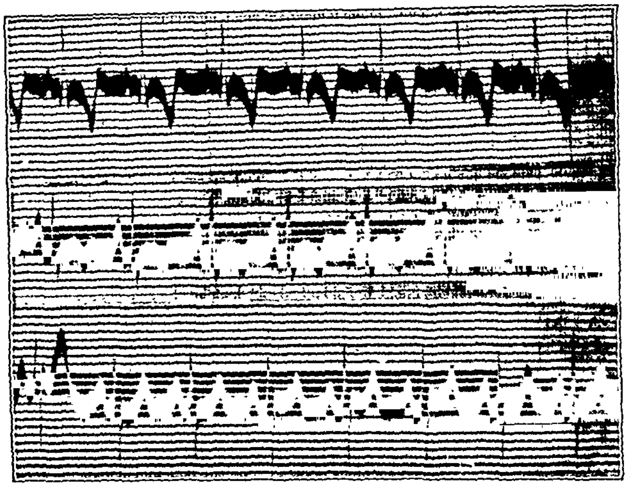
Fig. 3 (Case 3).—Electrocardiogram taken May 3, 1917, forty-one days after the coronary obstructive symptoms. Digitalis not used at this time.

The heart was large—the left ventricle at the apex, the lower interventricular septum and the papillary muscles, especially the anterior one, thinned, scarred and cutting like gristle. The descending branch of the left coronary and the large descending branch of the left circumflex were completely obliterated by old thrombi. The only sclerotic changes in the arteries were a few small patches in the aorta close to the openings of the coronary arteries, and similar patches in the coronaries themselves. It may be added that no history or stigmata of syphilis were noted during life, and that the Wassermann test on the blood had been negative.

According to the necropsy record made by Dr. Thacher of the Presbyterian Hospital, Oct. 8, 1917, the heart weighed 415 gm. The enlargement involved both sides of the heart. The external surface was fairly normal in appearance with the exception of a pale, depressed area 4 cm. in diameter midway between the base and apex of the left ventricle and a smaller similar area on the lateral surface close to the apex. The wall of the left ventricle near the apex and the interventricular septum were thin and of gristly consistency, cutting with marked resistance. The endocardium of the left ventricle had a pale, mottled appearance especially marked over the lower three quarters of the septum and the papillary muscles. The papillary muscles were smooth, contracted and firm, these changes being particularly marked in the anterior muscle. The greater extent of the fibrous changes in the endocardial and subendocardial tissues as compared with those on the external surface of the heart was striking. The left coronary artery contained an organized thrombus in the ramus descendens anterior 3 cm. from its origin. Also the first descending branch of the circumflex was occluded 1.5 cm. from its origin. The coronary arteries showed sclerotic plaques scattered throughout most of their course, these spots varying in size from 0.5 to 2 mm. in diameter. The aortic leaflets were thickened. There were a few sclerotic areas in the suprasigmoid area of the aorta.

EXPERIMENTAL WORK

I wish to call attention briefly to certain experimental work that has a direct bearing on the question of obstruction of the coronary arteries. At my suggestion, Dr. Fred M. Smith[2] in the Presbyterian Hospital and Rush Medical College studied experimentally the coronary arteries in dogs.

Method.—He took an electrocardiogram of each dog when under ether. Then the desired branch of the coronary artery was ligated. Following the operation electrocardiograms were taken at intervals varying from a few minutes to many days or weeks. On all dogs that died or that were killed a postmortem was made, and the gross and microscopic structure of the myocardial lesion was studied. Electrocardiograms were compared to see if there was uniformity in the tracings made after ligation of the same arteries and with the same lesions. Lastly, in human beings with

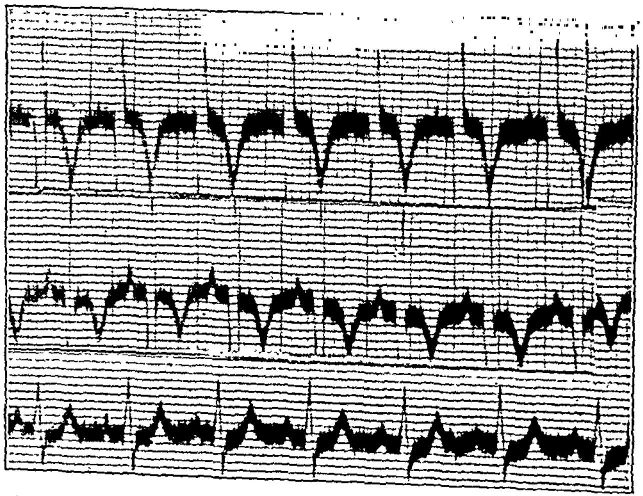
Fig. 4 (dog).—Electrocardiogram taken two days after ligation of anterior and posterior descending branches of the left circumflex artery.

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[2] Smith, F. M.: The Ligation of Coronary Arteries with Electrocardiographic Study, Arch. Int. Med. 22:8 (June) 1918.

symptoms suggestive of coronary thrombosis, the electrocardiograms were compared with those in dogs.

Results.—The results may be thus summarized:

1. Dogs may live days or months or may recover after ligation of branches of the coronary arteries, even branches of considerable size. This is contrary to the findings of Cohnheim, but is in accord with those of Porter, Miller and others.

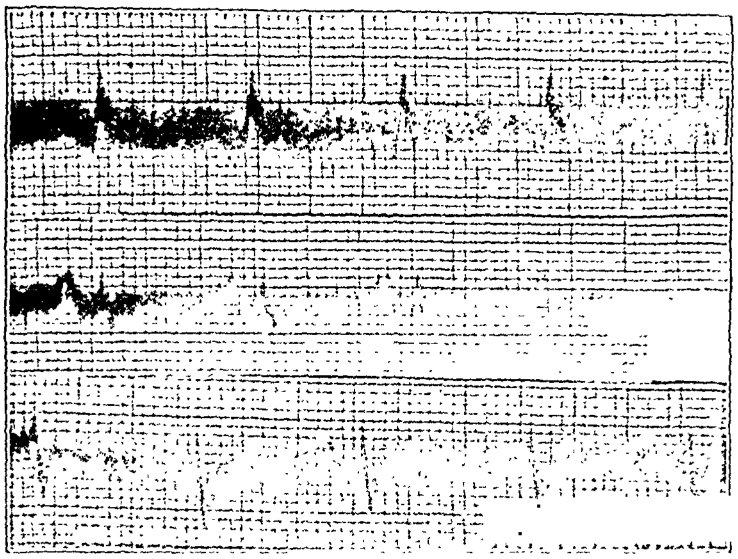

Fig. 5 (Case 3).—Electrocardiogram taken Sept. 27, 1917, 178 days after coronary thrombosis.

2. After the ligation of special branches, the lesions produced in the muscle are fairly constant. These lesions are most marked in the endocardial and subendocardial tissues, that is, in the conducting region. These findings may be compared with those of Oppenheimer and Rothschild.

3. Following the ligation, numerous irregularities, such as extrasystoles, tachycardia, auricular fibrillation, auricular flutter and ventricular fibrillation, may result. Thus far it has been impossible to predict the type of irregularity that will follow a ligation.

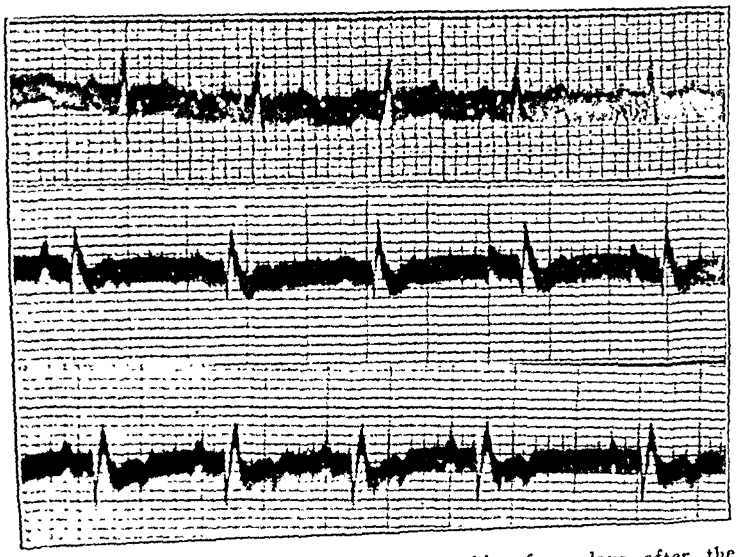

Fig. 6 (dog).—Electrocardiogram taken thirty-four days after the ligation of the ramus circumflexus sinister. Compare this low voltage tracing with Figure 5.

4. There seems to be a fairly constant variation in the electrocardiogram following the ligation of a particular branch of the coronary.

5. There is some hope that the work may assist in interpreting abnormal human electrocardiograms. The thought has been that if it can be proved that with a certain artery obstructed there is a definite lesion in the heart muscle or in the conducting system, and if with that lesion there is a definite electrocardiogram, may we not; when we encounter that abnormal electrocardiogram in the human being, particularly if he has had symptoms suggestive of coronary thrombosis, be able to state with a reasonable degree of certainty that the patient has had obstruction in a particular portion of the coronary system? May it perhaps be possible to localize a lesion in the coronary system with an accuracy comparable to that with which we locate obstructive lesions in the cerebral arteries?

NEED OF CONFIRMATION

This work needs confirmation as to the regularity of the results obtained and especially as to the interpretations and conclusions. Confirmation from necropsies is particularly desired. Patients with this condition do not present themselves very often. A large proportion with coronary obstruction die a sudden death, or are too ill to come to the office or to a hospital where they can have electrocardiographic tracings taken. And yet we have been able to take several suggestive tracings in patients in whom we believed these coronary thromboses to have occurred, and in one of the cases, Case 3, in which the patient lived five months after obstruction, the abnormal electrocardiograms gave helpful confirmatory evidence. Necropsy revealed the lesions anticipated.

TUBERCULOSIS ASSOCIATED WITH MALIGNANT NEOPLASIA

REPORT OF TWENTY CASES *

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ROCHESTER, MINN.

To Rokitansky[1] has been given the credit for teaching that tuberculosis and cancer are incompatible diseases; but since McCaskey,[2] in 1902, made the statement that he was strongly inclined to doubt that Rokitansky had ever held to this extreme view, it may be well to quote direct from Rokitansky's article on cyst formation:

> Cyst formation, as a new growth, is rarely found concurrent with tubercle, either in the same organ or in the same organism generally.

With regard to tuberculosis and cancer, he said:

> A similar antagonism, as shown from still more numerous observations, prevails between tubercle and carcinoma. Whenever their general correlation is susceptible of proof, cancer has seemed to succeed to tuberculosis, tubercle rarely to become developed after the extinction of cancer and its crasis.

Also:

> A corresponding result of much interest is afforded by a comparison of the scale of frequency of cancer and tubercle, as well as of several special local relations of both. They are diametrically opposed to one another, as thus:

FREQUENT	RARE
Lung tubercle	Lung cancer
Ovarium cancer	Ovarium tubercle
Salivary gland cancer	Salivary gland tubercle
Stomach cancer	Stomach tubercle
Esophagus cancer	Esophagus tubercle
Rectum cancer	Rectum tubercle
Ileum tubercle, etc.	Ileum cancer, etc.

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* I [illegible] of Surgical Pathology, Mayo Clinic.

[1] [illegible] Manual of Pathological Anatomy, London, Sydenham 1: 313-314, 1855.

[2] McCaskey, G. W.: The Clinical Association of Cancer and Tuberculosis, with Report of a Case, Am. J. M. Sc. 124: 97-105, 1902.

From the foregoing, it is obvious that Rokitansky did not teach that the two diseases are incompatible but that an antagonism prevails. While a few writers have held to the view that an antagonism exists between active tuberculosis and cancer, by far the greater number are of the opinion that no antagonism exists. McCaskey is apparently inclined to the former view, and he has suggested the systematic local injection of tuberculin in the cancerous tissue in properly selected inoperable cases of cancer. Dabney,[3] writing in 1916, fourteen years later, practically agrees with McCaskey. He has injected the tuberculin in seven cases of cancer, and in one, improvement of the patient's general condition immediately became very marked, and this improvement continued after three months or more of tuberculin therapy. Dabney used, as a basis for his argument in favor of the injection of tuberculin in cancer cases, that it would bring about a lymphocytosis in practically all cases; and as Murphy and Morton, and others have shown that lymphoid activity is an essential factor in the immunity process of artificially engrafted cancer, it would seem that the tuberculosis that brought about a condition of lymphoid activity would exert an inhibitory influence in cancer.

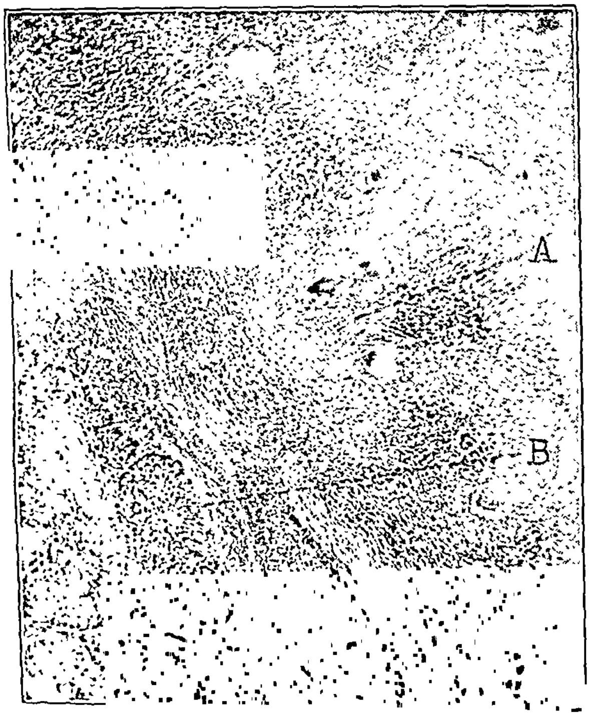

Fig. 1 (A 59139).—Tuberculosis and epithelioma in lymph gland of neck (low power): *A*, tuberculosis showing giant cells; *B*, epithelioma. The patient died.

From time to time the negative side of this question has been most ably defended, not only by observations made at necropsy but also from a surgical pathologic standpoint. The first and one of the most noted defenders of the theory was Lebert.[4] Williams[5] found a history of phthisis in 151 (47.7 per cent.) of 316 cancerous families. Lubarsch,[6] in 1888, found carcinoma in 2,668 tuberculous cadavers in 117 (4.4 per cent.) instances, and in 3,868 nontuberculous cadavers he found the condition in 452 (11.7 per cent.) instances. In 569 carcinomatous cadavers he found tuberculosis in 117 (20.6 per cent.) instances, and in 5,967 noncarcinomatous cadavers he found it in 2,551 (42.7 per cent.). His statistics indicate that carcinoma is found more often in nontuberculous than in tuberculous persons, the proportion being about 3:1 in favor

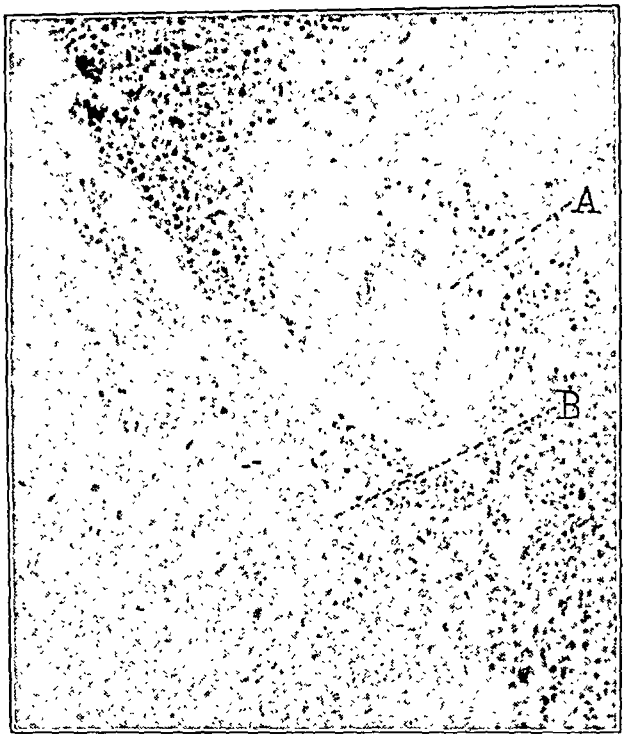

Fig. 2 (A 59139).—Same as Figure 1 (high power): *A*, giant cell of tuberculosis surrounded by epithelioid cells; *B*, epithelioma showing numerous mitotic figures.

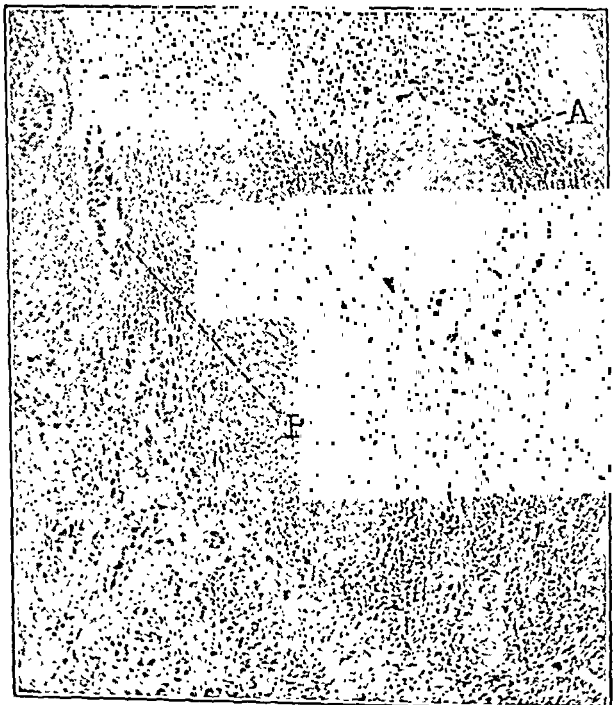

Fig. 3 (A 192320).—Tuberculosis and epithelioma in lymph gland of neck (low power): *A*, tubercle with giant cell; *B*, epithelioma. The patient's condition is unknown.

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[3] Dabney, W. M.: Tuberculosis and Cancer: A Possible Explanation of the Long-Discussed Question of Their Mutual Antagonism with the Suggestion of the Use of Tuberculin for the Prevention of Recurrence of Cancer, M. Rec. **90**: 804-805, 1916.

[4] Lebert, H.: Beiträge zur Kenntniss des Gallertkrebses, Virchows Arch. f. path. Anat. **4**: 214-215, 1852.

[5] Williams, W. R.: Cancer and Phthisis as Correlated Diseases, Lancet **1**: 977, 1887.

[6] Lubarsch, O.: Ueber den primären Krebs des Ileum nebst Bemerkungen über das gleichzeitige Vorkommen von Krebs und Tuberculose, Virchows Arch. f. path. Anat. **111**: 280-317, 1888.

of the former. He has also shown that tuberculosis is found twice as often in noncarcinomatous as in carcinomatous persons. Moak,[7] quoting Lubarsch, mentions five possible combinations of cancer and tuberculosis:

1. Simple coincidence, the diseases having no apparent action the one on the other.

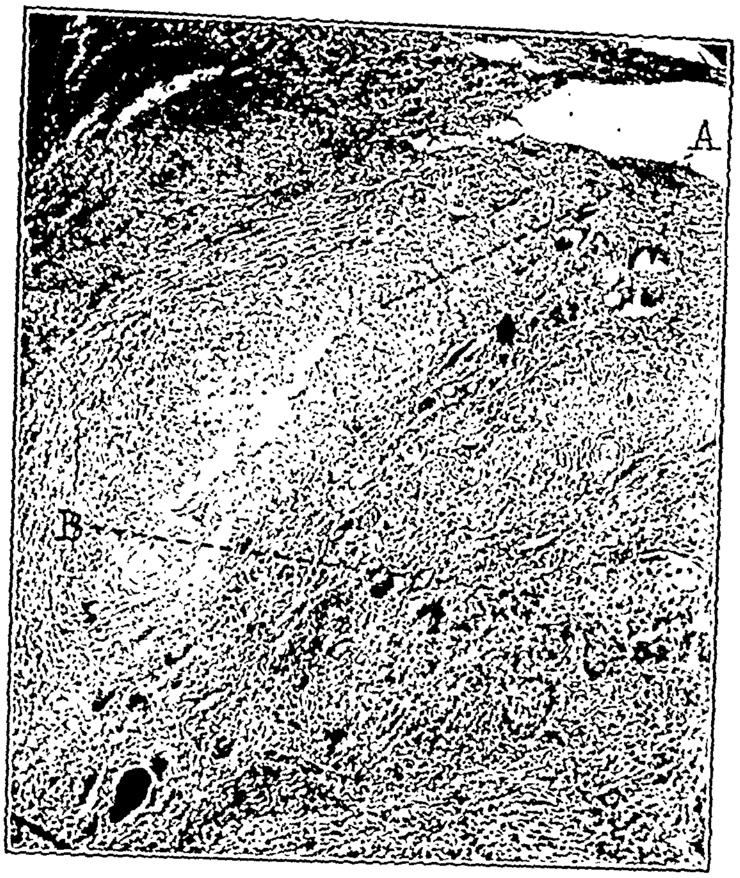

Fig. 4 (A 51290).—Tuberculosis and epithelioma in lymph gland of neck (low power): *A*, tuberculosis, showing necrotic area and giant cells; *B*, epithelioma. The patient is living and well, ninety-one months after operation.

2. Metastatic carcinoma developing secondarily on a recent or old tuberculous focus.
3. A tuberculous infection becoming engrafted on a cancer *in full evolution*.
4. Chronic progressive tuberculosis on which develops a cancer.
5. The simultaneous development of both cancer and tuberculosis.

Naegeli,[8] in 420 necropsies on adults aged more than 18 years, showed that 93 per cent. had either active, latent or healed tuberculosis.

Hoffman's[9] statistics show that in the United States registration area for the year 1913, out of 93,293 deaths from tuberculosis, 73.39 per cent. occurred at ages under 45, and 26.61 per cent. at ages over 45, and that of 49,887 deaths from cancer at all ages, 15.46 per cent. occurred at ages under 45, and 84.54 per cent. at ages over 45.

ANATOMIC LOCATION OF TUBERCULOSIS AND CANCER

Rokitansky and others have pointed out that these conditions are rarely found combined in certain organs, such as the esophagus, stomach, ileum, rectum, salivary glands, lungs, ovary, thyroid and pancreas. I was able to find but five positive and probable cases in which tuberculosis and cancer of the stomach were combined. The two diseases, in most instances, seem to select different anatomic points of origin, and by a metastatic process through the lymph or blood stream they meet at the starting point of one or the other, or at some point remote from their field of origin, such as the lymphatic glands.

Why one tissue or organ should be susceptible to malignant neoplasia or tuberculosis, and another should be, to a great extent, immune, is difficult to explain; nevertheless, such seems to be an established fact.

TABLE 1.—CASES FROM THE LITERATURE OF THE RELATIONSHIP OF TUBERCULOSIS AND CARCINOMA AT NECROPSY

Author	Carcinoma	Associated Tuberculosis	Per Cent.
Cahen*	257	13	5.0
LeGoupils†	632	53	8.4
Loeb‡	111	31	27.9
[illegible]	569	117	20.6
[illegible]	399	39	9.8
[illegible]	150	14	9.3
Schrader§	50	8	16.0
Williams§	166	27	16.2
	1,445	236	Average 16.3

* Cahen, cited by Lubarsch: Virchows Arch. f. path. Anat. 111:305-306, 1888.

† LeGoupils: Coincidence et rapports de la tuberculose et du cancer, Thèse de Paris, 1882, p. 38, cited by Lubarsch: Virchows Arch. f. path. Anat. 111:303, 1888.

‡ Loeb: Combination von Krebs und Tuberculose, Inaug.-Diss. München., 1889, cited by Naegeli: Virchows Arch. f. path. Anat. 148:437, 1897.

§ Cited by Naegeli: Virchows Arch. f. path. Anat. 148:436, 1897.

Tuberculosis associated with sarcoma has been reported by Ricker,[10] Trendweiler[10] and Iscovesco[10] (Moak). Tuberculosis associated with connective tissue malignant neoplasia is rare; the records of the Mayo Clinic show that epithelial tissue malignant neoplasia is about nine times as frequent as connective tissue malignant neoplasia. As an indication of the frequency of the association of tuberculosis with malignant neoplasia, statistics are cited both from necropsy and surgical pathologic standpoints as in Table 1.

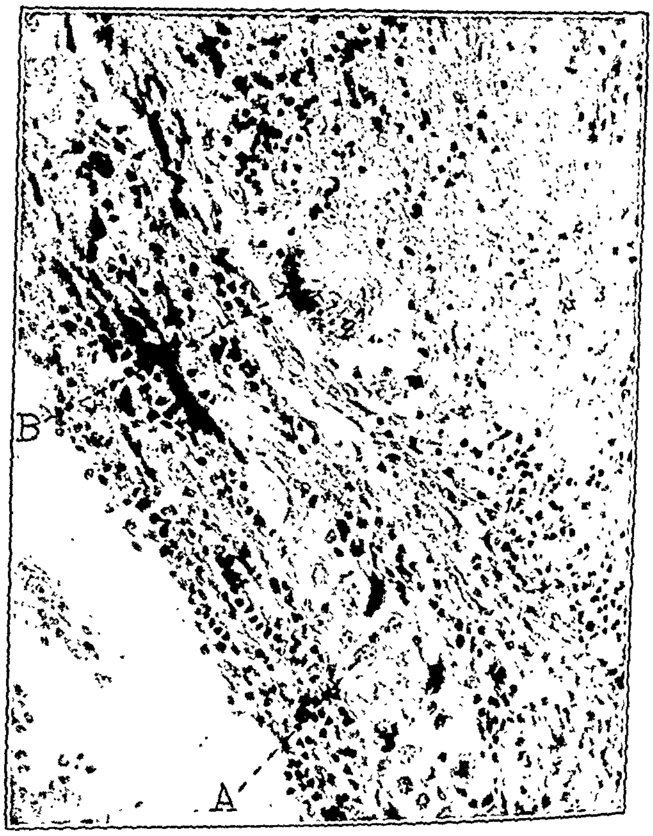

Fig. 5 (A 51290).—Same as Figure 4 (high power): *A*, epithelioma cells; *B*, giant cell of tuberculosis.

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[7] Moak, H.: On the Occurrence of Carcinoma and Tuberculosis in the Same Organ or Tissue, J. M. Res. **8**: 128-147, 1902.

[8] Naegeli, O.: Ueber Häufigkeit, Localisation und Ausheilung der Tuberkulose, Virchows Arch. f. path. Anat. **160**: 426-472, 1900.

[9] Hoffman, F. L.: The Mortality from Cancer Throughout the World, Newark, Prudential, pp. 187-188, 1915.

[10] Cited by Moak: J. M. Res. **8**: 143, 1902.

CASES FROM THE LITERATURE FOUND BY THE SURGICAL PATHOLOGIST OR AT NECROPSY

Naegeli[11] reported three cases in which tuberculosis and carcinoma were associated. The first patient had carcinoma and tuberculosis of the rectum, the second carcinoma and tuberculosis of the ileum, and the third colloid carcinoma and tuberculosis of the cecum.

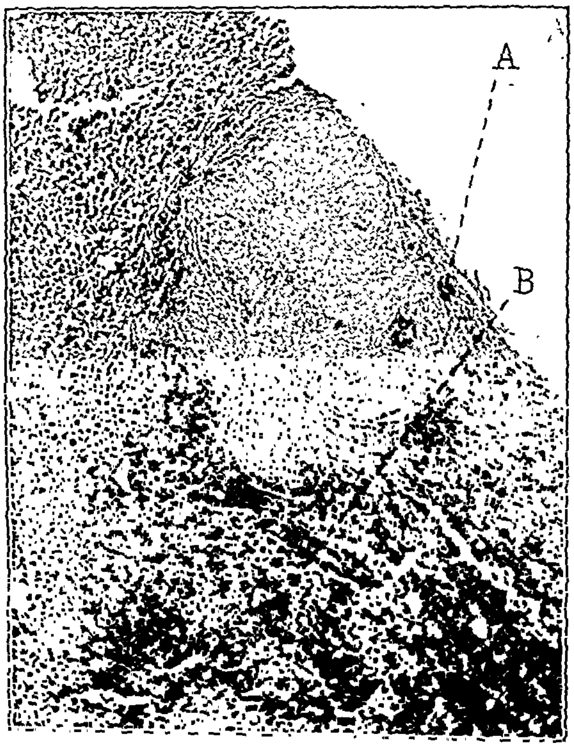

Fig. 6 (A 72500).—Tuberculosis and lymphosarcoma in lymph gland of neck (low power): *A*, tubercle with giant cell; *B*, lymphosarcoma cells. The condition of the patient is unknown.

TABLE 2.—CASES STUDIED IN THE SURGICAL PATHOLOGIC LABORATORY OF THE MAYO CLINIC

Cases		
Males		20
Females		14 (70%)
Average age		6 (30%)
Oldest		49 years
[illegible]		77 years
[illegible]		20 years
[illegible]		2 (10%)
[illegible]		3 (15%)
[illegible] tuberculosis		
Epithelioma of the lip		3 (15%)
History of smoking		7
		2 (28.5%)
TYPES OF MALIGNANT NEOPLASMS		
Squamous cell epithelioma		
Melano-epithelioma		13 (65%)
Adenocarcinoma		1 (5%)
[illegible]		6 (25%)
[illegible]		1 (5%)
[illegible]		21.5 months
[illegible]		4.2 cm.
Smallest		15 cm.
		1 cm.
PRIMARY LOCATIONS OF MALIGNANT NEOPLASMS		
Lip		
Cheek		7 (35%)
[illegible]		3 (15%)
[illegible]		2 (10%)
[illegible]		2 (10%)
Nose		1 (5%)
Neck (lymph glands)		1 (5%)
Parotid gland		1 (5%)
Transverse colon		1 (5%)
Rectum		1 (5%)
Total with metastasis		1 (5%)
Total without metastasis		11 (55%)
		9 (45%)
LOCATIONS OF METASTATIC NEOPLASMS		
Lymph glands of neck		
Lymph glands of axilla		9 (81.8%)
		2 (18.2%)
METASTASES TO NECK: PRIMARY LOCATIONS		
Lip		
Cheek		4 (44.4%)
		2 (22.2%)
Ear		1 (11.1%)
Nose		1 (11.1%)
Neck		1 (11.1%)
METASTASES TO AXILLA: PRIMARY LOCATION		
Breast		2 (100%)
LOCATIONS OF TUBERCULOUS PROCESSES		
Lymph glands of neck		15 (75%)
Lymph glands of axilla		2 (10%)
Lymph glands of mesentery		1 (5%)
Omentum and peritoneum		1 (5%)
Lip		1 (5%)
THE RELATION OF THE ASSOCIATION OF TUBERCULOSIS AND MALIGNANT NEOPLASIA		
In the same organ or tissue		8 (40%)
Lymph glands of neck (lymphosarcoma, primary 1)	7 (87.5%)	
Lymph glands of axilla	1 (12.5%)	
In the same microscopic field (low power) lymph glands of neck		7 (87.5%)
In the adjacent organs or tissues		5 (25%)
Lymph glands of the neck	3 (60%)	
Lymph glands of the neck and the parotid gland	1 (20%)	
Lymph glands of the axilla	1 (20%)	
Not intimately associated		7 (35%)
Malignant neoplasm—Tuberculosis:		
Lip—lymph glands of neck	3 (42.9%)	
Cheek—lymph glands of neck	1 (14.3%)	
Near angle of jaw—lymph glands of neck	1 (14.3%)	
Transverse colon—lymph glands of mesentery	1 (14.3%)	
Rectum—omentum and peritoneum	1 (14.3%)	
PRESENT CONDITION		
Dead		4 (20%)
Living		10 (50%)
Condition unknown		6 (30%)

Three of the four patients who died had malignant metastases in the glands of the neck.

Two of the ten living patients have a recurrence of malignancy, three are in good health, and five have been operated on too recently to be considered. Of the three known to be in good health, 160 months, ninety-one months, and thirty-nine months, respectively, after their last operations, the latter two had epithelioma and tuberculosis in the glands of the neck.

Warthin[12] reported two cases of carcinoma and primary tuberculosis associated in the mammary gland; in the second case both diseases were in the axillary glands also.

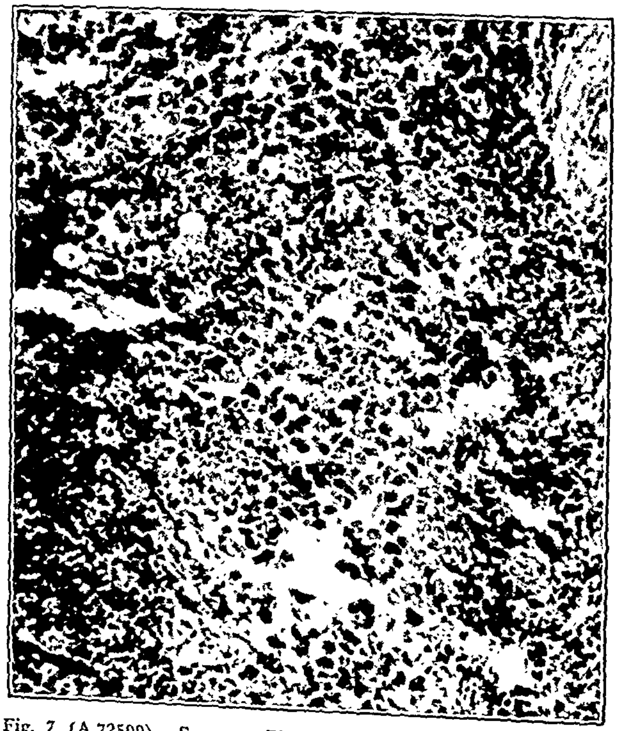

Fig. 7 (A 72500).—Same as Figure 6 (high power): lymphosarcoma cells.

Crowder[13] reported a case of tuberculosis and carcinoma of the cecum with tuberculosis of the lungs, peribronchial and retrocecal lymph glands.

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[11] Naegeli, O.: Die Combination von Tuberculose und Carcinom, Virchows Arch. f. path. Anat. **148**: 435-448, 1897.

[12] Warthin, A. S.: The Coexistence of Carcinoma and Tuberculosis of the Mammary Gland, Am. J. M. Sc. **118**: 25-35, 1899.

[13] Crowder, T. R.: A Contribution to the Pathology of Chronic Hyperplastic Tuberculosis of the Caecum, Based on the Study of Two Cases, in One of Which Carcinoma of the Caecum Coexisted, Am. J. M. Sc. **111**: 668-693, 1900.

Moak reported five cases of associated tuberculosis and carcinoma. The first case is practically the same as Warthin's second case; the primary tuberculosis and carcinoma in the mammary gland were associated with both diseases in the axillary glands. In the second case, metastatic carcinoma was associated with tuberculosis in an axillary lymph gland. In the third, carcinoma of the mammary gland was associated with carcinoma and tuberculosis in a lymph gland, probably from the axilla. In the fourth, adenocarcinoma was associated with tuberculosis in the sigmoid flexure, and the same combination was in the liver and the left kidney. The fifth case showed an adenocarcinoma and tuberculosis of the lungs, bronchial glands, retroperitoneal hemolymph glands, suprarenal, liver and spleen, secondary to primary carcinoma of the prostate and primary tuberculosis of the lungs. Moak quotes Steinhauser[14] as having collected from the literature eighty-three instances of lupus and carcinoma of the skin, and reported five new cases. Prior to the publication of the articles of Naegeli, Warthin, Crowder and Moak, in 1897, 1899, 1900 and 1902, respectively, a fairly large number of cases showing the association of the two conditions were reported, particularly in Europe, and since that time a fairly small number have appeared both here and abroad.[15]

CONCLUSIONS

1. The theory prevailing among the majority of physicians for a number of years and still prevailing among a few, that tuberculosis and malignant neoplasia are antagonistic, has not been borne out by the facts.

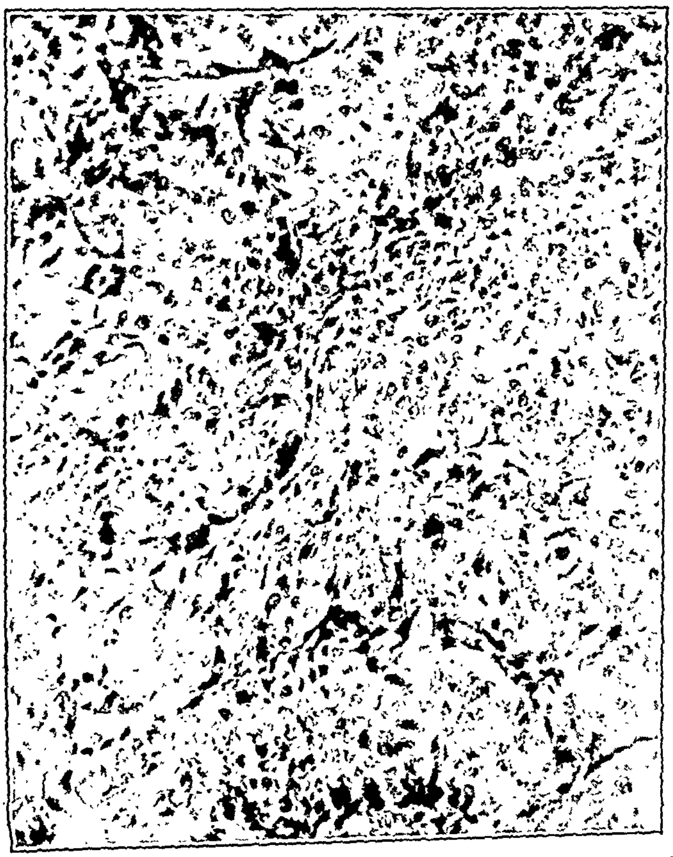

Fig. 8 (A 205751).—Melano-epithelioma of lymph gland of neck (high power).

2. The fact that some tissues or organs are, to a certain degree, *immune* from one or the other or both of these diseases does not prove that the two diseases are antagonistic.

3. If the observations of Naegeli are correct, in which he showed that in 93 per cent. of 420 necropsies on adults more than 18 years of age, either active, latent or healed tuberculosis had been present, then it is reasonable to believe that similar findings should prevail in an equal number of persons who have died with malignant neoplasia.

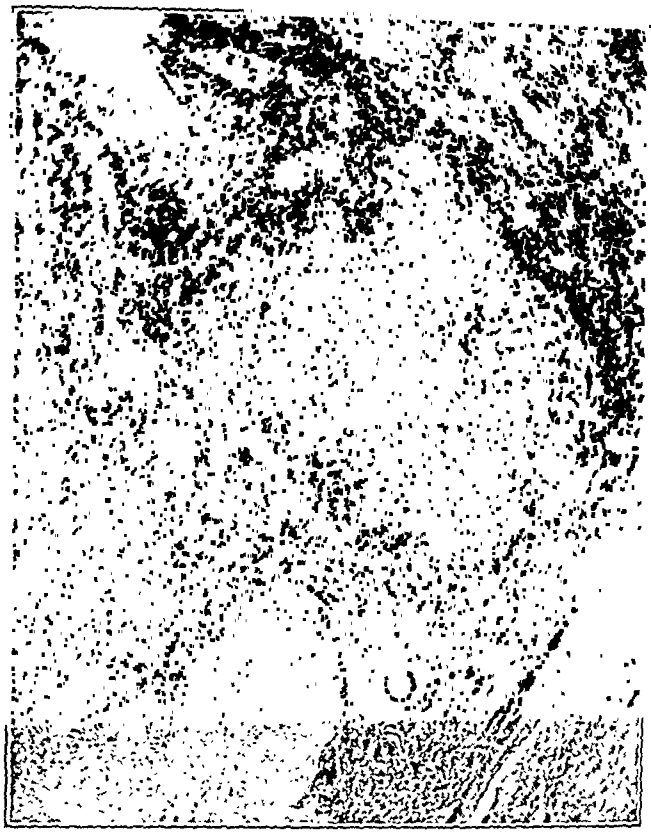

Fig. 9 (A 205751).—Tuberculosis in lymph gland, same as Figure 8, different field (low power). The condition of the patient is unknown.

4. It would seem that the reason pathologists are not finding tuberculosis more frequently at necropsy in persons who have died with malignant neoplasia is that the pathologists are satisfied to find the malignant neoplastic condition, and therefore fail to make a thorough search for tuberculosis.

5. Since the surgical pathologist's examination is limited to the tissue removed by the surgeon, he is greatly handicapped in the search for the two conditions associated, while the pathologist doing a necropsy has access to a large part or the whole of the body.

6. The fact that active tuberculosis occurs most frequently in persons under 45, and malignant neoplasia, especially epithelial tissue malignant neoplasia, most frequently in persons over 45, does not prohibit the association of latent and healed tuberculosis with malignant neoplasia.

7. In our series of twenty cases the two conditions were associated in the same microscopic field seven times (35 per cent.).

Industries Women May Engage In.—Women are capable of doing any and all kinds of work. It is not a question of women and industries, but of the individual woman and the individual job. If the woman is properly selected through physical examination, and is allowed to work under medical supervision, and the occupation is conducted subject to the standards set for hygiene, sanitation and accident prevention, women can do any sort of work which men can do.—*American Journal of Public Health.*

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14. Steinhauser, cited by Moak: J. M. Res. **8**: 142, 1902.

15. In addition to the references already given, the following will be found of interest:
Broders, A. C.: Tuberculosis of the Stomach, with Report of a Case of Multiple Tuberculous Ulcers, Surg., Gynec. & Obst. **25**: 490-504, 1917.

METHEMOGLOBINEMIA DUE TO POISONING BY SHOE DYE

REPORT OF A SERIES OF CASES AT AN ARMY CAMP

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July 18, 1918, a patient was admitted to the base hospital of Camp Johnston in an alarming state of cyanosis. His finger-nails and lips were a deep blue, almost black, yet he complained of no special discomfort. The condition was first noted by friends of the patient, who himself would not have known that he was ill. Examination of the patient was essentially negative, except in the marked cyanosis. The temperature and pulse were normal. Blood taken by puncture of the finger appeared dark. The red and white counts were about normal, but the hemoglobin could not be read on the Tallqvist scale, since it was much above 100. With rest in bed and catharsis, the patient quickly regained his normal color, so that he was well in twenty-four hours.

Following this initial case in July, other cases occurred in August, September and October. By the end of October there had been sixteen cases, in all of which the patients recovered promptly, usually in twelve hours, by rest in bed and catharsis. Many, however, complained of headache, nausea, dizziness and general malaise.

The condition was assumed to be a sulphemoglobinemia, and was so unusual that a special board was appointed by the camp surgeon's office to collect data and investigate these cases. A captain in the Medical Corps was sent from Washington to study the cases, the etiology of which remained in doubt. The general belief was that the condition was due to poisoning or intoxication, or infection by food or water. The possibility of infection by Gaertner's bacillus was kept in mind. The investigator from Washington gathered data, which, though negative, was of value. He found that the cases, while coming mostly from Block A, were not related to any mess, any menu or any particular article of food. Cases occurred on various days of the week. The water supply was ruled out. All the water in this section of Florida was known to contain traces of hydrogen sulphid. While the base hospital laboratory examination of scrapings from one of the tanks during the summer had shown sulphur granules and thiobacteria, the water supply was known to be excellent. Moreover, no cases of cyanosis had occurred in the civil population of Jacksonville, which was furnished water not unlike that of the camp Thus the matter stood, Nov. 1, 1918, when the seventeenth and last case of cyanosis occurred At noon, November 1, a report came to the base hospital laboratory that there was a case of cyanosis in Jacksonville. I accordingly went to the city with the necessary equipment for making a spectroscopic examination and percentage determination of the hemoglobin, a blood count, blood culture and stool culture. I had seen none of the preceding cases. At 2 o'clock, when the patient was examined, he had entirely recovered from the cyanosis

REPORT OF CASE

The patient, Second Lieut. J. M. M., Q. M. C., aged 23, became "blue" at about 6 p. m. the preceding day, and complained of dizziness, headache, and of feeling cold. He went to the home of a friend in Jacksonville, where he was immediately put to bed, because "he looked like the dead body of a drowned man." At 8 p. m., a captain in the Medical Corps was called to see him. Castor oil was prescribed. After thorough catharsis during the night, the patient felt better and his normal color returned. The patient dated his illness to three days before he became blue, at which time he began having slight diarrhea which he thought terminated in the cyanosis. He was the first to notice that he was blue, but it did not alarm him when he saw himself in the mirror, since some of his friends had had the same trouble and had recovered from it promptly. The patient had been eating in Block H, while most cases came from Block A. He had eaten two meals in Jacksonville on the day he became ill and one a week before he took sick. All other meals were taken at his regular mess. He never ate cheese or fish. He did not remember of eating heartily of any dish, except fresh, raw apples, or of partaking of any unusual food or drink, previous to his illness. He believed that the lemonade at his mess might be the cause of the trouble, suspecting that the lemon extract might contain wood alcohol. He stated with certainty that he had eaten no meat for two and one-half weeks before he became sick. Four days before he became blue, and one day before he began to have diarrhea, he began eating meat.

The history thus far suggested the possibility of meat being the etiologic factor. It was only on November 7, when the patient was quite well, that the fact was elicited that he had had his shoes darkened on the day he became ill. He stated that the odor of the dye had seemed pleasant when it was applied, but after the "blue spell" the odor, which adhered to the shoes, was offensive. This was the clue that led to the shoe dye.

THE SHOE DYE

I then interviewed three other men who had been blue, and all of them were positive they had had their shoes dyed the day they became ill, or had worn newly dyed shoes on that day. One man stated voluntarily that his shoes were distasteful to him after he had left the hospital. They all had the work done at "Toney's" boot black stand in Jacksonville. They were all newly commissioned. This fact strengthened the case against the dye, for the necessity of darkened shoes, that is, shoes to match puttees, was felt most by the newly commissioned officers in Block A, who were getting their equipment. The enlisted men in the blocks could ill afford to pay a dollar, which was Toney's price for the dyeing of a pair of shoes. The fifth man interviewed, who had been blue, had also had his shoes dyed at Toney's but he was sure that they had been dyed a week after he was in the hospital. He stated that were this a legal matter involved, he would state the fact under oath. This was disconcerting. However, three additional men who had been cyanotics were found who like the first four, remembered distinctly that their shoes had been dyed the day they went to the hospital. The other nine of the seventeen men had gone overseas and could not be reached.

TEST OF THE DYE

It only remained to get some of Toney's dye and test it in the laboratory. I obtained a few ounces under false pretenses. The name of the manufacturer could not be learned, since Toney had a sort of monopoly of this process of darkening russet shoes, and kept it a secret. The dye was found to be a dark brown, oily liquid with a pleasant almond odor, which soon became suffocating. Some of it was tried on white mice. It was found that 8 drops on cotton, placed in an open half pint Lightning jar containing a white mouse, killed the animal in four or five hours. For a few minutes the animal would not object to the odor of the dye, then it would grow restless and seek to escape, then dyspneic and drowsy and finally unconscious. Before this stage it would recover, if put in the fresh air; after this it would always die. It would become distinctly cyanotic. At necropsy the blood would be almost black and show the presence of methemoglobin by the spectroscope. It now seemed important to try the dye on a human being. This I did on myself, dying my own shoes with some of Toney's preparation. After wearing the shoes four hours, I felt nausea, headache and visual disturbances. Well satisfied with the result of the experiment and enthusiastic for carrying it further on some one else, I removed the shoes. I did not become cyanotic.

November 12, two men in the laboratory, Private Chester Garden and Lieut. E. F. Blair, S. C., having had the matter fully explained to them, volunteered to let me dye their shoes with Toney's dye, by Toney's method. Private Garden was not visibly affected by wearing his shoes six hours, but he complained of headache and nausea, which lasted eighteen hours. Leiutenant Blair, whose shoes were more thoroughly saturated with the dye, after being more thoroughly cleaned with alcohol, became slightly cyanotic in six hours. In seven hours his lips and finger-nails were purple, and he looked ghastly. He had no complaint. His feet "burned" a little, but caused no real discomfort. His blood, obtained by the puncture of the ear lobe, was abnormally dark. The red cells had fallen slightly during the seven hours, from 4,100,000 to 3,900,000. The white cells rose from 9,000 to 12,000, the differential count being unchanged. The hemoglobin by Tallqvist's scale was above 100 and could not be read; it had been 90. By Sahli's it was 95 per cent; it had been 90 per cent. Spectroscopic examination of the blood revealed the normal absorption bands of oxyhemoglobin; sufficient methemoglobin was not present to be detected by a direct vision spectroscope.

NITROBENZENE POISONING

Chemical examination of the dye, later confirmed by the department laboratory, showed the presence of nitrobenzene, also called nitrobenzol, and in trade, oil of mirbane. It is an oily liquid with the odor of bitter almonds, which sometimes produces poisoning in the coal-tar color industries, explosive works, and pharmaceutic laboratories, poisoning whose symptoms are nausea and vomiting, headache, vertigo, tinnitus, visual disturbances, local burning sensation, dyspnea, and marked cyanosis with the formation of methemoglobin. The presence of nitrobenzene in a shoe dye was not surprising to one of the oldest and largest manufacturers of shoe dyes and polishes in this country, since such dyes contain anilin made from nitrobenzene. This firm had never heard of poisoning as a result of wearing dyed shoes.

It is interesting to note that poisoning by nitrobenzene, while unusual, is not unknown. Blyth[1] notes a case in which death of a man resulted in nine hours by the accidental spilling of nitrobenzene on his clothes. It will be surprising if similar cases of cyanosis have not occurred at other camps. I have a record of one case at this camp in which the dye was not bought at Toney's, but at a well known shoe firm in Jacksonville, which has branch stores in all of the large cities.

The poisonous properties of these dyes are soon lost from the shoes. In three or four days after the shoes have been dyed, it is apparently safe to wear them.

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[1] Blyth, A. B.: Poisons: Their Effects and Detection, New York, the D. Van Nostrand Company, 1907.

FURTHER OBSERVATIONS ON SEX GLAND IMPLANTATION

G. FRANK LYDSTON,[1] M.D.
CHICAGO

I desire first briefly to present observations of several cases hitherto reported, with special reference to the present condition. The first of these cases was exhibited at the Urological Society of Chicago in October, 1917, and the second at the November, 1917, meeting.

CASES ALREADY REPORTED

Case 1.—At the age of 17 an injury to the right testis was sustained. This was followed probably by a hematocele and traumatic orchitis. When the swelling subsided the gland had "entirely disappeared." The left testis atrophied to a moderate degree subsequent to the injury. Virility was unimpaired, but the patient developed distinctly feminine secondary sex characteristics.

At the age of 29 an infection of unknown character attacked the remaining testis, with resultant pain in the left iliolumbar region, left spermatic cord and testis. The clinical history of the case at that time is not available. According to the patient's story, the testicle did not swell, but there was considerable fulness of the spermatic veins. Within three weeks the organ had completely atrophied, and some weeks later the case was referred to me.

At the time of my examination the patient was of healthy appearance, but excessively fat. The beard was almost negligible, the mammae moderately large, and the pelvis distinctly feminine. Sexual power, which had been "satisfactory" until after the loss of the second testicle, had entirely disappeared. During the years subsequent to the original injury the patient had not been physically as fit as before, and for about a year he had been physically and mentally quite inefficient, which inefficiency rapidly increased after the loss of the remaining testicle.

Palpation disclosed scarcely a vestige of tissue at the end of the spermatic cords. Only a small body somewhat larger than a grain of wheat could be felt on each side. The penis was of very moderate development with a long prepuce, but otherwise normal.

Aug. 1, 1915, I implanted on this patient both testes taken from a boy of 14, dead of a crushing injury. The glands were removed six hours after death and placed in sterile salt solution. The operation was performed thirty-nine hours after the death of the donor.

The results of the implantation were extremely satisfactory, the patient regaining his physical, sexual and mental efficiency. There was a marked change in the secondary sex characteristics so far as the excessive fat was concerned.

Nov. 15, 1918, more than three years and three months subsequent to the operation, the patient reported as still in satisfactory condition. He had entirely lost his fat excess and was robust and athletic in appearance. The implanted testes were still in evidence, firm and obviously sclerotic, and about the size of a good sized hazelnut. The remnants of the testes present at the time of operation had increased to the size of a large pea. There apparently had been no decrease in the size of the implanted organs after the first eighteen months.

Case 2.—The patient, aged 19, following vaccination at the age of 13, developed a secondary infection of the testes, resulting in almost complete atrophy of both organs within a few weeks. Coincidentally the penis became distinctly smaller. The case was examined by several surgeons, who diagnosed retained testicle on the left side, and suggested operation. At the age of 17 the patient came under my observation.

The boy was tall and healthy looking, with distinctly feminine secondary sex characteristics. The pelvis, mons veneris, and mammary glands were suggestive of a girl just entering on puberty. No beard was in evidence. There was a bare suggestion of hair on the pubes. The left testicle was a small, soft, barely perceptible nodule about as large as a small pea, just below the external inguinal ring. The right testicle was soft and about the size and shape of a small Lima bean. The penis was no longer than that of a well-developed child of 5 or 6 years of age, slightly "hooded," and suggested an enlarged clitoris. Psychically the boy was normal despite the absence of any signs of virility.

The case passed from under observation and subsequently an ill-advised operation was performed on the left side for "retained testis," with resultant destruction of what little gland tissue remained.

At the age of 19 the boy again reported. Implantation of testes was consented to and the operation performed, Oct. 27, 1916. The material used was taken from a healthy boy, aged 15, dead twenty-four hours of gas poisoning. The glands were refrigerated for thirty-two hours.

The secondary sex characteristics in this case became more masculine, there was a considerable growth of pubic hair, the penis increased greatly in size, and virility was established.

I last examined this patient late in June, 1918, one year and eight months after implantation. The condition of the testes was essentially the same as in Case 1, and apparently they had not grown smaller since the patient was exhibited at the Urological Society in November, 1917. It is interesting to note that this boy passed the Army examination and is now a Second Lieutenant in the U. S. Army in one of our American camps. In a recent letter he reported a considerable increase in the growth of his beard.

ADDITIONAL CASES

CASE 3.—A paretic dement, aged 46, in whom the syphilitic condition had been very insidious, and some six years had elapsed since the symptoms were noticed, had been unable to attend to any business affairs of any consequence for several years and, for obvious reasons, was not permitted to go about the city streets unattended. He complained rather strenuously of loss of sexual power.

In the hope of retarding the progress of the paresis, a successful double implantation was performed in August, 1917. The glands used were taken from a boy, aged 16, dead of accident twenty-four hours. They were refrigerated for thirty hours. The effect of the implantation was in a general way quite remarkable. The patient became brighter and his physicial condition greatly improved. Sexual activity was so increased that he was rather inclined to complain of it. His mental condition was so far improved that he was permitted to go about alone, and was able to attend to a little business. It is proper to state that he had antisyphilitic treatment more or less continuously. The fact remains, however, that the case was at a standstill and there was no marked improvement until the implantation was done.

About fourteen months after implantation, the improvement apparently having continued, the patient suddenly developed violent one-sided convulsions, lapsed into coma, and died. There was no necropsy. A diagnosis of probable cerebral thrombosis was made.

CASE 4.—A man, aged 21, whose sexual organs were congenitally undeveloped, had moderately marked feminine secondary sex characteristics, and his beard was very slightly in evidence. His general physical development was imperfect, the patient being 6 feet 3 inches in height and weighing 130 pounds. There was very moderate sexual activity. Unsatisfactory and unpleasurable experimental coitus had been performed on three or four occasions. The patient complained of general weakness and stated that he had very little physical endurance. There was no sexual psychopathy. There was a fair amount of pubic hair and very moderate penile development. Only on painstaking examination could any suggestion of testes be felt. Several surgeons who previously had examined the patient had diagnosed "retained testes." The glands were about the size of a navy bean, and so soft as to be barely perceptible.

A successful double implantation was performed, June 15, 1918, the material being procured from a boy of 16, dead eighteen hours of a crushing injury of the skull. The material was kept on ice for thirty-six hours.

The patient was examined, Oct. 1, 1918. There had been a marked increase in size and improvement in consistency of the patient's own testes. The physical condition was vastly improved. His color was excellent and he had gained 20 pounds in flesh. As he expressed it, he never felt so well in his life. He said, however, that while erections were more vigorous, he experienced no sexual desire. The penis appeared to be of firmer consistency and slightly better developed than at the time of operation. He had been overindulging in physical exercise, which possibly might explain the lack of desire. Nov. 12, 1918, improvement in the general condition was sustained, but there was still a lack of sexual desire.

The patient again reported for examination Jan. 6, 1918. There had been still further development of his own testes. The implanted glands were in excellent condition and had not appreciably shrunken since the last examination. Sexual power and desire apparently were normal.

CASE 5.—A professional writer, aged 29, suffered from profound sexual neurasthenia, and complained of the entire gamut of symptoms characteristic of such cases. A careful examination that I made and previous examinations by numerous competent neurologists had elicited no organic nervous lesion. (Since the implantation I have discovered floating right kidney.) The pivotal point of his symptoms was simply pain with extreme hyperesthesia of the skin and pain referred to the bladder. As everything else had been tried in this case, I suggested an implantation, chiefly for the psychic effect.

A successful implantation of a single testis, taken from the body of a boy of 17, dead of accident, and preserved on ice in saline solution for thirty-eight hours, was performed, Sept. 7, 1918.

There was marked improvement in the patient's general condition, but no change in the nervous symptoms of which he complained at the time of the last examination, about six weeks after implantation. The implanted gland was slowly atrophying. Nephropexy was suggested as a "possible" source of improvement. How frequently this operation is disappointing in neuropathies the surgeon is well aware.

CASE 6.—A physician, aged 40, complained of neurasthenic symptoms from overwork, associated with an annoying tachycardia.

Implantation was performed at the patient's request, the companion testicle to the one used in Case 5 being employed. Local results were satisfactory.

The patient has not reported recently, but a month after operation he wrote that he was in much better general condition, and that the tachycardia had subsided.

CASE 7.—A man, past 50 years of age, complained of failure of sexual power. He said that sexual intercourse was possible only when he was under the influence of alcohol. The subject is distinctly melancholiac. An implantation was suggested in the hope that the combined psychic effect and the stimulating action of the sex hormone would remedy the obviously psychopathic condition.

Testes taken from a boy of 18, dead of accident, were used, the implantation being done forty-eight hours after the death of the donor. The material was refrigerated for more than thirty hours.

When this case was last heard from, about six weeks after operation, the implanted glands were in excellent condition. The patient stated, however, that he still was unable to perform the act of intercourse except when under the influence of liquor. On one occasion, however, subsequent to the operation, while under the influence of alcohol he indulged, according to his own account, four times in succession, an extent that should be considered excessive for a normal man of his age.

As this patient drifted away from observation, I do not know the present condition of the implanted glands. The patient recently wrote that his sexual status was not improved.

Case 8.—A man, aged 27, had marked feminine secondary sex characteristics and congenitally undeveloped sexual organs. Not only were the testes almost imperceptible, the case having been pronounced one of retained testes, but there was no scrotal development. In order to prepare a field for implantation, it was necessary to "cup" the scrotal region with a vacuum pump for some weeks prior to the implantation. The pubic hair was exceedingly sparse. There was practically no hair in the normal location of the scrotum. The patient was exceedingly spare, being 5 feet 8¾ inches in height, and weighing 120 pounds. The development of the mons veneris and pelvis was especially feminine in character.

Oct. 8, 1918, a double implantation was performed. The material was taken from a boy of 17, dead of accident. The testes were refrigerated in boric solution on ice for forty-eight hours. The implanted glands in this case were quite large, and the pseudoscrotum which I had succeeded in "pocketing" was so thin that I was very apprehensive of sloughing.

There was sloughing of a circular area of the skin about one-fourth inch in diameter over the most prominent portion of the gland implanted on the right side. There was a slight necrosis of the fascia at this point, and there is still a small sinus giving exit to a small quantity of serous fluid. Five weeks after operation the implanted glands were still in good condition and obviously "alive." There has been an increase in the quantity and an increased coarseness of fiber of the returning pubic hair. Quite a quantity of hair is appearing on the lower part of the scrotum. The patient states that he now has vigorous and prolonged erections and that at the time of erection the penis is distinctly larger than before operation. The organ is slightly firmer when flaccid. The patient's color and general condition is much better, his nutrition having greatly improved.

As to the ultimate results in this case, it is to be remarked that at the age of 27 the outcome is much less promising than in cases in which operation was performed at an earlier period. It is my belief that when implantation is done in cases of like character at an age not too far from puberty, results as good as those obtained in Case 2 reasonably may be expected. In such cases as Case 2 reimplantation should be followed by even more satisfactory results.

Dec. 15, 1918, the sinus had closed and the implanted testes were in good condition.

The next case is especially gratifying to me because the operation was performed by another surgeon. Dr. L. L. Stanley, of the California State Prison at San Quentin, was so courteous as to describe the case to me with permission to publish a report of it in connection with this series.

Case 9.—A man, aged 25, evidently a moron, committed for attempt at burglary, had been kicked in the testicle, five years previously, with following inflammation, swelling, and subsequent atrophy. At the time of operation the testes were the size of "olive pits." The patient was tall, thin, anemic, and very dull and apathetic. He originally had been a teamster.

The donor was a negro who was hanged for murder. The glands were refrigerated for some hours. The glands were removed from the donor fifteen minutes after death. An anastomosis of the vas deferens was done on the right side. The left "implant" was inserted partially within the tunica vaginalis and held in place by several sutures, without anastomosis. The testes were not decorticated.

Seven weeks after operation the doctor reported that the testes were firm and were not atrophied and were "resting nicely in the scrotal sac." The patient had gained 15 pounds and had become active and alert—in fact, he was improved in every way—and sexually had become very active.

Three months after operation, the right testicle had atrophied slightly, but was still firm and well shaped. The left testicle was in excellent condition. The doctor said: "He now has erections nightly and frequently in the daytime, something he has never had before. He is much stronger and livelier and gets about much more actively. It is reported that whereas before he was slow and inactive and seemed about 'half dead,' he now speaks out quickly, has improved mentally, and has livened up to a marked degree. He now will 'square away' if anybody 'quips' him, and he can make a quick retort, whereas before he would pay little attention to any offense offered him."

COMMENT

The course of all these cases was practically afebrile and attended by no pain during the postoperative treatment. In Cases 4 and 5 the patients complained of some reflex pains in the spermatic cords for a few weeks subsequent to implantation.

I wish to note especially the result obtained by Dr. Stanley, particularly in the matter of "cross-racial" implantation. Should the testes in this case permanently endure or atrophy no more slowly than when the donor is of the same race as the recipient, it biologically would be a most interesting and a practically valuable observation.

That there is any advantage in the anastomosis of the vas is open to question, first, as to the betterment of nutrition, and secondly, as to the preservation of spermatogenic function. I myself believe that we run more risk of failure of the implant from the greater traumatization of the tissues necessary for anastomosis. Then, too, it is my belief that the spermatogenic epithelium of the tubules degenerates in all cases rather promptly. This, however, is a point that can be determined only by examination of the semen, as to which Dr. Stanley has not yet reported. As bearing on this point, I wish to recall a case of my own in which a fistula formed and persisted for five or six weeks after the implantation of a decorticated gland. The secretion from this fistula contained immature spermatozoa. In dissections that I have made of implanted testes at various times after operation there apparently has been an extensive proliferation of the cells of Leydig and a coincidental encroachment on and destruction of the spermatogenic tissue proper.

An observation which seemingly is worthy of note is the fact that the implanted glands atrophy and disappear more rapidly when the recipient has well-developed testes of his own. The apparently permanent local results thus far obtained were in cases in which the patient had very little gland tissue, as in Cases 1 and 2. A sort of "parasitic" action of the patient's own glands on the implanted organs suggests itself. Possibly the patient's testes appropriate nutritive pabulum which otherwise might be available for the implanted organs. In any event, therapeutic results are obtained and sustained even when the implanted glands eventually disappear. When, as in Cases 1 and 2, the patient's own remnants of testis tissue develop after the implantation, it is reasonable to expect permanence of any improvement that occurs in the patient's condition.

Since this paper was written, I have examined a patient whose case was previously reported, on whom an implantation was done at the age of 69 for possible improvement of senility and failing sexual power. The results in this case were eminently satisfactory, and nearly two years later still endure, although the implanted glands practically have disappeared.

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TRENCH FEVER

A CRITICAL REVIEW [*]

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In the spring of 1915 there began to appear in the British army in France a large number of cases of an acute infection resembling influenza. More careful investigation, however, soon showed that the disease was not influenza, but a new clinical entity. Since the early cases arose chiefly among the soldiers at the front line, the name "trench fever" soon came to be used.

The disease was described first by Graham[1] in September, 1915, while the designation "trench fever" was used first by Hunt and Rankin,[2] who gave an excellent clinical description of the disease.

Briefly, trench fever is characterized by the sudden onset of fever, with dizziness, headache, backache, and pains in the legs, which later become localized in the shins. The temperature curve is often characteristic, showing an intermission on the third or fourth day, followed after an interval of a day or two by a second rise. The final defervescence takes place at about the eighth day, and is followed by one or several relapses at fairly regular intervals. There is no mortality.

The disease has been and is very prevalent in the British army in France, though apparently it is much less common in the French, German and Italian armies. It has been reported only in isolated instances in the British armies operating elsewhere. A few cases have been reported in England among those brought in contact with soldiers invalided home from France with the disease.

As first encountered, the disease occurred only in two groups of men: (*a*) those who had been recently in the front line trenches, and (*b*) the personnel of hospitals in which trench fever patients were being cared for. Later it became more widely disseminated.

SYMPTOMS

The onset of the disease is usually sudden; those affected may fall while on duty. The first symptoms are dizziness, headache and pains in the lumbar region and legs, associated with fever. Chilliness is common, but true chills are unusual. There may be vomiting. Headache is not very severe, is most often frontal, and frequently is referred to as behind the eyes, which may be painful on motion. Exceptionally the headache may be occipital and associated with stiffness of the neck, so that the suspicion of meningitis arises.

The lumbar pain may be so severe at the onset that smallpox is suggested. In the legs it appears at first to be muscular in its seat, later becoming localized to the tibiae; it is rarely in the joints. There is often pain in the splenic region. Abdominal pain is common, and is either generalized, or confined to the right lower quadrant or the left hypochondrium. Appendicitis may be simulated. The pain is usually accompanied by well-marked hyperesthesia of the skin, most often on the outer aspect of the legs, but also on the thighs and in the precordial and left axillary regions. This hyperesthesia constitutes a sign of considerable diagnostic importance, as it is rarely seen in the diseases likely to be mistaken for trench fever.

Prostration is often very marked, or it may be almost lacking. Constipation may be present, but it is not the rule, and diarrhea is absent.

On physical examination, the eyes are bright; the conjunctivae, as in so many acute infectious diseases, are almost invariably injected, but there is no exudate. Nystagmus on lateral motion of the eyes occurs in about 85 per cent. of the cases; it is an early sign and persists throughout the disease; and since it is seldom seen in other acute infections, it constitutes a valuable diagnostic sign. Herpes is rare. The tongue is clean or slightly coated. The respiratory tract, in contrast with influenza, shows no signs of inflammation. The pulse rate is usually low in proportion to the fever during the original attack, but with relapses there is a tendency toward tachycardia.

Many writers have stated that the spleen is not enlarged, but this is an error. In the experimentally produced disease, the American Red Cross Commission[3] found palpable enlargement at some period of the disease in 85 per cent. of the cases, and within a few hours of the onset in 25 per cent. The enlargement may be first encountered at almost any stage of the disease, and persists for a variable period, sometimes only for a day or two. These facts probably account for the failure of many observers to detect the enlargement, which is usually quite moderate in degree. In the disease as it occurs in nature, the frequency of splenic enlargement is probably about the same as in the infection when produced experimentally.

A characteristic rash appears in about 50 per cent. of the cases, but it is so evanescent that it has been overlooked by most observers. It is well described by Drummond,[4] and by the American Red Cross Commission.[3] It consists of scattered red macules, about the size of rose-spots, disappearing with pressure and rarely elevated. It occurs chiefly on the trunk, in successive crops, during the original attack, and in relapses.

Examination of the blood reveals in most cases a leukocytosis during the primary attack and in relapses.[5] In some cases, however, leukopenia occurs. At the time of a relapse the picture is more or less characteristic, in that neutrophils, lymphocytes and large mononuclears are all simultaneously increased. The red cells show nothing of importance. The urine rarely shows albumin and casts.

TEMPERATURE

According to McNee, Renshaw and Brunt,[6] two types may be distinguished, the short and the long. In the former there is usually an intermission of the fever about the third day, followed by a rise after a day or two of normal temperature; the patient becomes afebrile at the end of seven or eight days and either recovers promptly or suffers a single relapse.

The long type shows a very characteristic temperature curve, owing to the presence of relapses. These are usually three or four in number, and are often spaced at regular intervals, resembling in their periodicity the febrile attacks of rat-bite fever. The interval between relapses ranges from four to thirteen days, but is usually fairly constant for the individual case. The temperature during the relapse is often as high as in the original attack, but rarely remains up for more than thirty-six hours, so that the chart has a "spiky" appearance. There is a tendency for the fever to be lower with each succeeding relapse. Between the attacks the patient feels fairly well, though slight pains in the shins, aggravated at night, serve to remind him that he is not through with his disease. During the relapse the symptoms of the original attack recur with more or less violence.

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[*] Read before the New Haven County Medical Society, April 25, 1918, and published with additions to bring it up to date.

[1] Graham, J. H. P.: Lancet **2**: 703, 1915.

[2] Hunt, G. H., and Rankin, A. C.: Lancet **2**: 1133, 1915.

[3] Trench Fever, Report of Commission, Medical Research Committee American Red Cross, Oxford University Press, 1918.

[4] Drummond, H.: Quart. J. Med. **11**: 363, 1918.

[5] Perkins, H. W., and Urwick, R. H.: Quart. J. Med. **11**: 374, 1918.

[6] McNee, J. W.; Renshaw, A., and Brunt, E. H.: Brit. M. J. **1**: 225, 1916.

During the summer of 1915, according to these authors, the short type was much the more common, but in the following winter the long type[7] was encountered more frequently. Since this form incapacitates the soldier for from four to six weeks, and occasionally for months, trench fever causes a very considerable wastage of men.

In addition to these two types, there should be added a more chronic one, which has received little attention from writers at the front because such cases are invalided back to England. Here, following a typical history of acute trench fever, there is a chronic state of ill health. The patient suffers from pains in the shins, aggravated at night and on exertion. The temperature is not quite normal, but shows a slight rise to 99.5 or 100 in the evening. From time to time there is a slight further rise in the temperature with increase of the pain. Such a condition may last for many months.

Complications are conspicuous by their absence. A fairly common sequel is the condition variously labeled "soldier's heart," disordered action of the heart (D. A. H.) and effort syndrome (Lewis). Among the numerous cases of this condition seen by the reviewer at the Military Heart Hospital at Hampstead, the onset could often be traced to an attack of trench fever.

ETIOLOGY

That trench fever is caused by an infectious organism was proved by the work of McNee, Renshaw and Brunt.[6] These investigators were able to transmit the disease to healthy soldiers by the intravenous or intramuscular injection of whole blood obtained from cases of trench fever, and the blood of such experimental cases was found capable of causing the disease in other soldiers. Experiments with washed red corpuscles were also successful, while those with plasma and serum were inconclusive. Filtered plasma and serum, and filtered extracts of the red corpuscles were found incapable of producing the disease. They concluded that the organism was probably contained in the red blood corpuscles or in the leukocytes, and that it was not filtrable.

These experiments have been recently confirmed by the Trench Fever Commission of the Medical Research Committee, American Red Cross, headed by Major R. P. Strong.[8] Very carefully controlled experiments were made on healthy volunteers from the American army in France. Fifteen out of sixteen soldiers inoculated with whole blood, and three out of four inoculated with washed red corpuscles, developed the disease. In contrast to their predecessors, however, they obtained positive results in all five cases inoculated with plasma. Plasma, serum, and extracts of red corpuscles, after filtration through a Berkefeld filter, were found incapable of reproducing the disease. The blood was proved to be most infectious during the first two days of fever, and more so in the original attack than during a relapse. The authors concluded that the organisms were contained in the blood, particularly in the plasma, and that some were thrown down with the red cells in the process of centrifugation.

The search for the organism thus far has led to conflicting results. The marked tendency to relapses at rather regular intervals is very suggestive of a spirochetal origin of the disease. There is close resemblance of the temperature charts to those of rat-bite fever and relapsing fever, two diseases known to be caused by spirochetes. Thus far spirochetes have been found in the urine in trench fever by Nankivell and Sundell,[9] by Patterson,[10] and by Reimer.[11] The first named found them in twelve out of fifteen cases. They were present in small numbers and not on all occasions, being most often found from the fourteenth to the sixteenth day. The work of Stoddard,[12] however, has shown that great care must be used in interpreting the presence of spirochetes in the urine. He found spirochetes of various shapes in the urine, and in urethral smears in 33 per cent. of 100 healthy men. He noted no difference in the spirochetes in smears in trench fever patients from those in healthy controls.

Dimond[13] reported the finding of hemogregarines in the peripheral, splenic and hepatic blood in twelve cases of trench fever. This organism is a protozoon hitherto found in lizards, rats and dogs, but not in man. His findings have not been confirmed as yet, and his published work is far from convincing.

Blood cultures have always yielded negative results, except in the hands of Houston and McCloy,[14] who reported the presence of the enterococcus, a variety of streptococcus found in the normal intestinal tract. Animal inoculations with the blood of trench fever patients have remained negative.

METHOD OF TRANSMISSION

That trench fever is contagious there can be no doubt. In many instances soldiers have been infected by sleeping with sufferers from the disease, and hospital orderlies often have taken it from patients in the wards. The circumstances under which it arises suggest strongly that it is in some way connected with the living conditions in the trenches. Hunt and McNee[7] state that a history of lousiness was obtained in most of their patients.

That the usual method of transmission is through the body louse is rendered certain by recent experimental work. Davies and Weldon[15] were the first to convey the disease in this way, obtaining a positive result in one out of two experiments in which lice were put to feed on trench fever patients and then on the authors. To prove the point, much more extended experiments were necessary, and these have been recently forthcoming at the hands of the American

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[7] Hunt, G. H., and McNee, J. W.: Quart. J. Med. 9:442, 1916.

[8] Strong, R. P.; Swift, H. F.; Opie, E. L.; MacNeal, W. J.; Baetjer, W.; Pappenheimer, A. M., and Peacock, A. D.: Report on Progress of Trench Fever Investigations, Am. Red Cross M. Bull. March, 1918; J. A. M. A. 70:1597 (June 1) 1918. Trench Fever (Footnote 3).

[9] Nankivell, A. T., and Sundell, C. E.: Lancet 2:672, 1917.

[10] Patterson, S. W.: Brit. M. J. 2:418, 1917.

[11] Reimer: München. med. Wchnschr., Jan. 11, 1917.

[12] Stoddard, J. L.: Brit. M. J. 2:416, 1917.

[13] Dimond, L.: Lancet 2:382, 1917.

[14] Houston, T., and McCloy, J. M.: Lancet 2:632, 1916.

[15] Davies, F. C., and Weldon, R. P.: J. Roy. Army Med. Corps 30:92, 1918.

Red Cross Commission,[3] already referred to. Twenty-two men were exposed to infected lice, and four to noninfected lice, while eight were kept as controls under similar conditions, but free from lice. From twenty-five to 100 lice were placed on each volunteer, after feeding on patients with trench fever, and were allowed to remain for thirty days, or until trench fever developed. In certain cases one half of the lice were removed from the first volunteer from forty-eight to sixty hours after the time of feeding on the trench fever patient, and transferred to a second volunteer. Twelve of the twenty-two men exposed contracted the disease, after an interval of from sixteen to thirty-five days. In four cases the second volunteer developed trench fever, the first volunteers having been previously exposed to the lice for about two days. This renders it probable that the infection was not directly mechanical, but that the lice really harbored the organisms. The controls remained healthy.

The method of transmission was still further elucidated by the work of Byam and his associates.[16] They found that biting by infected lice was not of itself sufficient to transmit the disease, but that the excreta of such lice, rubbed into the scarified skin, would do so with great regularity. The excreta were found to be infective only after an interval of seven days or more after feeding on the trench fever patient; this fact suggests the possibility that the organism undergoes a developmental cycle within the louse. Lice were found to remain infective for a period of at least twenty-three days after feeding on the patient. These experiments indicate that infection in nature probably occurs by rubbing in the louse excreta in the process of scratching.

NATURE OF THE VIRUS

The experiments with filtered blood, already described, all proved negative. A filtrable organism, however, is often held back by the filter when contained in a colloidal solution, such as blood. The Red Cross Commission was able, however, to infect with filtered urinary sediment, and with filtered louse excrement extract, so that the organism may be regarded, for the present at least, as a filtrable one. The virus resists drying and moist heat at 60 C. for thirty minutes, a temperature that kills lice and their ova. They are killed, however, by a temperature of 70 C. for thirty minutes.

The question of immunity after an attack of trench fever is difficult to answer, on account of the long interval of good health that may obtain between relapses. Byam, however, was able to infect a patient who had completely recovered from the disease, while four other patients with chronic trench fever proved refractory.

The incubation period of the disease when produced by the inoculation of blood varies from five to twenty-four days, and in the experiments with lice from sixteen to thirty-five days. In the disease as it arises under natural conditions, it appears to be from fourteen to twenty-four days.[7]

In the absence of fatal cases, the pathology remains unknown.

DIFFERENTIAL DIAGNOSIS

The disease most likely to be mistaken for trench fever is influenza, using the term in its wide sense to include all griplike attacks, whether due to the influenza bacillus or to the streptococcus, *Micrococcus catarrhalis*, etc. The two diseases have in common the sudden onset with fever and generalized pains. The prostration, however, is usually less in trench fever than in influenza, and there are no signs of inflammation of the respiratory tract, while in influenza the shin pains and relapsing type of fever are absent.

From dengue it is distinguished by the character of the eruption, the presence of leukocytosis, and by the fact that dengue has never been reported north of the forty-first degree of latitude.[17]

Relapsing fever is easily excluded by the examination of the blood for spirochetes, and rat-bite fever by the history, the absence of enlargement of the regional lymph nodes, and the different type of eruption.

From typhoid fever and Malta fever it is readily differentiated by the clinical course and by cultural and serologic methods.

PROPHYLAXIS AND TREATMENT

The prevention of trench fever, like that of typhus, rests principally on efficient methods of destruction of lice. If the patients are kept free from lice, isolation is not necessary. Since the blood has been shown to be infectious during a relapse, patients should not be returned to duty until it is unlikely that more relapses will occur.

Up to the present, no effective method of treatment has been devised. The early employment of rest in bed probably shortens the course of the disease. For the pain the salicylates or coal-tar products may be sufficient, but morphin is necessary in the severer cases. Dimond[13] reports relief to the pain in chronic cases from the use of lumbar puncture. The injection of the serum of convalescents has been tried, but without success. Arsphenamin is ineffective. For the symptoms of irritable heart in chronic cases, Byam recommends thyroid extract.

Those especially interested in the subject should study the report of the Trench Fever Commission of the American Red Cross,[3] which contains detailed reports of its experimental work, and of the clinical aspects of the disease as experimentally produced, together with a complete summary of the literature.

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16. Byam, W.; Carroll, J. H.; Churchill, J. H.; Dimond, L.; Lloyd, L.; Sorapure, V. N., and Wilson, R. M.: Trench Fever, J. A. M. A. 71:21, 110, 188, 1918.

17. Van der Burg, in Mense: Handbuch der Tropenkrankheiten 2:95.

Milk.—The National Commission on Milk Standards, after receiving reports on prices paid for milk to the producer and prices at which milk is sold to the consumer, and the mortality statistics from a number of the large cities of the country, has made the following statements regarding milk: The price of milk to the consumer from 1914 to 1918 has in general increased from 50 to 100 per cent.; the quantity consumed has fluctuated, but at the time of the report was not less than the normal of usual supply; there has been an improvement in infant mortality and a lessening of diarrheal diseases among children under 2 years of age, and this improvement has not been checked by the advance in the price of milk between 1914 and 1918; there is evidence of serious condition of undernourishment among children of school age, due, as the commission believes, to improperly regulated diet, and to poverty, but to a larger extent to lack of appreciation of the value of milk as compared with other foods; other foods have increased in price in greater proportion than milk; even at present retail prices milk is the most economical animal food that can be purchased; good nutrition cannot be secured on diets from which milk, eggs and leafy vegetables are absent, and the use of these classes of food should be extended.

OUTBREAK OF TYPHOID FEVER AMONG AMERICAN TROOPS IN ENGLAND *

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July 11, 1918, there appeared at an American rest camp in England the Fourth Casual Company, J. A. R. D., Camp Cody. Soon after its entrance to the camp several soldiers with fever were brought to Camp Hospital No. 34. At the time many cases of influenza were present among the soldiers who were passing through this camp, so that no special significance was attributed to the symptoms they presented. After a few days' observation the commanding officer of Camp Hospital No. 34 suspected that the cases might be typhoid fever. At about the same time the commanding officer of Camp Hospital No. 36 transferred a few patients to U. S. Base Hospital No. 204. Suspicion of typhoid fever was soon aroused, and blood cultures were ordered by the attending medical officer. The district sanitary officer of United States troops inspected the patients and took specimens of blood in all of the cases. *Bacillus typhosus* was isolated in eight out of ten cases two days later. During the next month *Bacillus typhosus* was isolated from the blood or feces in ten more cases. Altogether, thirty-eight soldiers developed typhoid fever. *Bacillus typhosus* was isolated in eighteen of these cases.

EPIDEMIOLOGY

The organization left Camp Cody, Deming, N. M. June 15, 1918, for Camp Merritt, N. J. While en route, June 18, the organization stopped at Meridian, Miss., and was taken for a swim in a lake. The organization arrived at Camp Merritt, June 21, embarked, June 28, and arrived at Liverpool, July 10. After disembarkation the organization proceeded to the rest camp at Romsey, England. At the British port of debarkation, three cases were left at Red Cross Hospital No. 4, and it is reported that two other cases were left at some station en route to the camp. At the American Rest Camp forty soldiers were found ill and transferred to United States Base Hospital No. 204, where a diagnosis of typhoid fever was made on thirty-eight of them.

From a study of the history of each case it was noted that the date of onset varied over a period of about a month. The first patient was ill on leaving Camp Cody. The second case developed, June 19; the third, June 21; the fourth, June 24; three developed on the 26th, four on the 29th, and five, July 6, after which a case developed every day up to the time the organization arrived at the American rest camp at Romsey.

The organization left the American rest camp before the diagnosis of typhoid fever had been established, and it has since been learned that fifty-seven other cases developed. This makes ninety-eight cases from a total of 248 men.[1]

In seeking the sources of the infection of this outbreak, we naturally turn to the patient who was first ill:

F., 1416995, W., private, Fourth Casual Company, J. A. R. D., *Camp Cody*, the onset of whose illness seems very obscure, stated that he had rheumatism at Camp Cody all the time he was there. He said that he was at the base hospital for two months. He stated that he did not feel well when he left Camp Cody and did not feel any different en route. He proceeded with his company to the American rest camp at Romsey, England, and was admitted to the hospital, July 11, with a doubtful diagnosis. He was transferred to U. S. Base Hospital No. 204, July 16. The patient's temperature and pulse curves would indicate that his illness had continued for a considerable period. It was quite typical of a convalescent period of typhoid fever. This patient went with the company to bathe in the lake at Meridian, Miss.

The service record shows that inoculation with triple typhoid vaccine was completed, Oct. 23, 1917, and paratyphoid vaccine, Oct. 28, 1917. The patient stated that he received at Columbus, Neb., five doses and at Camp Cody two doses of typhoid vaccine.

Another history also is of interest in connection with the source of this outbreak:

B., 1415881, W., private, Fourth Casual Company, J. A. R. D., Camp Cody, stated that he did not feel well when he left Camp Cody, June 15, and that he had stomach trouble and severe diarrhea en route to Camp Merritt. He said that at Camp Merritt the doctor gave him some pills to relieve his trouble. The illness continued during his voyage across the ocean. He continued with his company to the American rest camp and was admitted to Camp Hospital No. 34, July 11, with no diagnosis and was transferred to U. S. Base Hospital No. 204, July 14, as a suspected case of typhoid fever. The clinical record of this case shows that when the patient first entered the hospital his fever and pulse rate was lower than it was three or four days later, so that probably the real date of the onset of his typhoid fever was about July 10. One should, however, note that this increase in fever beginning about July 10 may have been a recrudescence of typhoid fever which began at the time he left Camp Cody.

The patient's service record states that inoculation with triple typhoid vaccine was completed, Oct. 30, 1917. The patient stated that he received three doses of typhoid vaccine at Camp Dodge.

From Table 1 it will be noted that a considerable group of cases developed during the latter part of June and early part of July. This suggests a common source of infection. There are two possibilities:

These patients became infected either in the train early in the journey or by bathing in the water at Meridian, Miss., June 18. The water may easily have been infected by one or two typhoid patients that were present in the organization at the time. In the remaining cases of typhoid the men undoubtedly received their infection by contact with the patients who were ill in the organization. This could easily be done since the men were crowded together on the train or on shipboard.

There were about 1,800 men on board the steamer, which number was composed of Casual Companies 4, 10, 11 and 15, and Supply Company 112. Most of these organizations went on to France, and among the members of Casual Company 4, fifty-seven other cases developed, as is mentioned above.

All of these patients had been inoculated with either typhoid vaccine and paratyphoid vaccine or triple typhoid vaccine or both. Many of them had received several doses in excess of the required number, and the men were inoculated at widely different posts and at different times. One patient says that he received but one dose; otherwise it would seem that the whole organization was thoroughly immunized.

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* From the Office of the Chief Surgeon, American Troops in England.

* Table 2, describing the salient clinical features of the forty cases of typhoid, is too large for publication in The Journal. It will be included in the authors' reprints.

[1] Official Weekly Bulletin 20.

CLINICAL FEATURES

Opportunity to make a clinical study of these cases was afforded one of us (C. B. H.) at Base Hospital 204, Hursley Park, Hants, through the kindness of Major J. B. Fattic, M.C., in command.

Prompt segregation of the patients was effected by screening their ward. Disinfection of excreta was accomplished by chemical means, all dishes, bed pans and urinals were scalded immediately after use, and no case of typhoid developed as a result of hospital infection. The diet was largely liquid. A plentiful supply of excellent milk and eggs was available, and was supplemented by broths, cocoa and soft foods, as much as possible, especially in the milder cases. Facilities for the preparation of articles of soft diet were limited, and consequently additions of this nature to the diet were not so extensive as might have been desired. However, the size of the intestinal ulcerations found at necropsy in the fatal cases was such as to cause extreme hesitation in the matter of more liberal feeding for the rest of the patients.

TABLE 1.—CASES OF TYPHOID FEVER ACCORDING TO DATE OF ONSET*

June

Cody	En Route to Camp Merritt						Camp Merritt									
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
+	×						×			+		+ + +	+	× ×	× × × +	× × +

July

En Route to England									American Rest Camp, England					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
× ×	× × × +	× +	× + ×		× × × + + +	× +	+ ×	+	× +	+	+			

* In this table × indicates *cases in which B. typhosus* has been isolated, and + indicates cases which were clinically typhoid, but in which no B. typhosus has been *isolated to date.*

Table 2 has been prepared so that the salient features of this group of cases may be presented in as brief a form as possible. A short discussion and explanation of this table may aid in a clear understanding of the cases. Of the forty cases in the group, only two were clinically not typhoid. These are Cases 7 and 38.

1. Under the heading "Onset," the date and initial symptoms are shown. The establishment of the exact date was very difficult, and in many cases was determined by the clinical record during the course of illness at the hospital, verified as far as possible by a more or less indefinite statement of the patient. The striking feature shown under "Initial Symptoms," which are mentioned in the order of their occurrence, is the frequency of chill as the first abnormality noted by the patient. This occurred in approximately 16 per cent. of the cases, and was, by the patients' statements, a definite rigor. Diarrhea early in the onset occurred in approximately 58 per cent. of the cases, constipation in approximately 21 per cent., abdominal pain in approximately 6 per cent., and nosebleed in but one case, approximately 2.6 per cent.

2. The figures in the column "Duration on Admission" are based on the dates of onset, and are therefore not exact, but closely approximate the truth. The shortest duration of disease on admission was three days, the longest thirty-one days. From this column the average duration of disease on admission is determined as thirteen and one-half days.

3. Diarrhea was troublesome in but seven cases, constipation in six cases, abdominal distention in nine cases, and marked persistent abdominal distress in three cases.

4. Rose spots were observed in nineteen cases. Probable enlargement of the spleen as determined by percussion was noted in eighteen cases, and is designated by a single plus under the column marked "Spleen." Palpable spleen was made out in fifteen cases, and is shown in this column by a double plus. Tender toes, designated by a plus sign, were demonstrated in fifteen cases. In five cases this condition was so marked as to cause considerable discomfort.

5. The leukocyte counts are quite typical of typhoid. A count of 7,000 or less occurred in eighteen cases. The second count in Case 29 shows the leukocytosis of a complicating lobar pneumonia. The second and third counts in Case 33 show the leukocytosis of perforation and beginning peritonitis. The second count in Case 36 was considered as strong indication of perforation, occurring in coincidence with severe abdominal pain. However, there was not enough evidence to warrant operation, and we were later forced to conclude that the perforation, if any had occurred, had been sealed immediately by the omentum.

6. The results obtained by the atropin test are of extreme interest and worthy of a more extensive discussion than can be given in this report. In one column appears the day of disease on which the test was performed; in the next column is noted the pulse reaction. If an acceleration in pulse rate occurred, it is shown by a plus sign and a number representing the amount of increase due to the atropin over the normal rate immediately before the administration of atropin. Unfortunately, it was impossible to repeat tests in any of the cases because of lack of time. Two of the forty patients in this group, 34 and 37, died before the series of tests was started. Two of the remaining thirty-eight patients, 7 and 38, clinically not typhoid, showed accelerations of 24 and 34 beats, respectively, and should be considered negative reactions (acceleration of over 15 beats), leaving tests in thirty-six cases of clinical typhoid for consideration.

An acceleration of pulse rate occurred in thirty-three cases, a decrease of rate occurred in one, Case 33. No alteration in rate occurred in two, Cases 10 and 28. Twenty-three of the thirty-six cases showed a positive reaction (either a decrease, no alteration, or an increase of less than fifteen beats). The earliest day on which the test was performed in this group of twenty-three was the seventeenth day; the latest, the thirty-first day. The results in this group of thirty-six show a positive reaction in 63.8 per cent. of the cases. Of the eleven cases showing an acceleration of fifteen or more beats, the test was performed later than the thirtieth day of disease in seven cases, and in none was the test made earlier than the twenty-first day. It is only fair to the originators of this test to state that accuracy is not claimed for tests done later than the thirtieth day, and to point out the fact that if we eliminate the seven cases just mentioned, the percentage of positive results in the whole series of thirty-six cases would be 79.3 per cent.[2]

7. Typhoid bacilli were isolated from the blood in twelve cases, and from the stools in nine cases. In one, Case 34, the blood culture was positive as late as the twentieth day of the disease. In the column marked "Widals" are placed the results as determined by a series of tests made in each case.

8. The clinical course is briefly shown in the latter part of the chart. Average temperature and pulse rates, during the fastidium, are shown in their proper columns. The average

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[2] These tests were carried out according to the technic described by Capt. H. F. Marris, R. A. M. C. (Brit. M. J. 2:717, 1916) and Special Report Series, No. 9, Medical Research Committee, to which article and articles on the same subject by Alfred Friedlander and C. P. McCord (J. A. M. A. 70:1435 [May 18] 1918) and E. H. Mason (Arch. Int. Med. 21:1 [Jan.] 1918) the reader is referred for further information.

duration of fever in thirty-two cases in which the patients are now convalescent is over thirty-five days. The shortest, Case 32, is nineteen days, the longest, Case 40, is fifty-eight days. Of the fatal cases, Patient 11 died the thirty-third day of terminal pneumonia; Patient 30 died the thirty-ninth day of toxemia; Patient 33 died the thirty-eighth day of surgical shock, following operation for perforation; Patient 34 died the twenty-seventh day of toxemia; Patient 37 died the ninth day of toxemia. Out of the thirty-eight cases, twenty-seven were high grade typhoids, much more severe than should be expected in vaccinated men. This is undoubtedly due to the average lateness in the course on admission to the hospital. The remaining eleven cases were mild, low grade typhoids. Complications occurring in this series were: Lobar pneumonia, one, Case 29; terminal pneumonia, one, Case 30; bronchopneumonia, two, Cases 11 and 30; severe bronchitis, six, Cases 1, 3, 8, 12, 27 and 34; hemorrhage, three, Cases 10, 12 and 13; perforation, one, Case 33; phlebitis, one, Case 36; bed sore, two, Cases 5 and 10; one, Case 15, is still febrile in the fifty-first day of disease.

TABLE 3.—SUMMARY OF LABORATORY FINDINGS

	No. of Cases
B. typhosus isolated from blood and from stool	4
B. typhosus isolated from blood only	8
B. typhosus isolated from stool only	5
Typical typhoid lesions at necropsy in cases in which the bacillus was not isolated during life (B. typhosus isolated postmortem from two of the foregoing)	3
Typical shift in typhoid agglutinins; blood and stool cultures negative	6

LABORATORY FINDINGS

Of the forty patients in this series, admitted to Base Hospital 204 as typhoid suspects, the laboratory findings were positive in twenty-six. The results are summarized in Table 3.

BLOOD CULTURES

Blood cultures in sterile oxbile yielded positive results in about 30 per cent. of the cases. This is higher than would be expected when it is considered that most were cultivated in the third week or even later in the disease. Moreover, it can be seen at a glance at Table 4, in which the cases are arranged in order of the date of onset, that the positive blood cultures are not grouped at the end of the table, among

TABLE 4.—BLOOD AND STOOL CULTURES, AGGLUTINATION TESTS AND VACCINATION DATA

No.	Date of Onset	Identification Number	Blood Cultures		Stool Cultures			Agglutination					Vaccination			Place
			Day of Disease	Result	No. of Examinations	Number Positive	Day of Disease Positive	Day of Disease	Agglutinin Units* Typhoid	Para A	Para B	Interpretation	Months Previous to Admission	Vaccine†	Doses‡	
1	Before June 15	1416955	34+	0	8	0	..	34	36	38	50	Neg.	8 8	T P	7	Columbus, Neb. and Camp Cody
								43	27	18	31					
2	June 15	1415881	32	0	12	0	..	32	2300	50	60	Typh.	8	TAB	3	Camp Dodge
								42	3600	25	60					
								60	1400	16	30					
3	June 19	1415949	29	0	9	0	..	20	18	25	6	Neg.	8	TAB	3	Camp Dodge
								41	18	25	31					
								62	18	80	12					
4	June 21	1412008	26	+	1	1	26	26	71	19	30	....	10	T	3	Camp Dodge
5	June 24	1412297	24	0	8	0	..	24	710	25	62	Typh.	8	TAB	3	Camp Dodge
								34	360	18	31					
								57	140	16	12					
6	June 26	1415933	22	0	8	0	..	22	7	25	31	Typh. (?)	8	T	3	Camp Dodge
								33	36	25	62					
7	June 26	1415903	23	0	9	0	..	23	17	50	62	Para A or B?	8	T?	3	Camps Dodge and Cody
								32	17	25	62					
								53	36	16	12					
8	June 26	1416918	23	0	7	0	..	23	530	50	31	Typh.	6	T	8	Camps Fu and C
								32	1400	50	62					
								53	530	16	31					
9	June 28	1416649	19	+	8	1	40	19	36	5	30	Typh. (?)	8	TAB	3+	Camp
								35	55	25	30					
								54	18	6	30					
10	June 28	1417300	20	0	2	0	..	20	36	50	250	Para B (?)	6	?	5	Fort Logan a Camp Cody
								31	36	50	120					
								39	71	620	62					
11	June 29	1416912	18	+	3	0	..	18	107	75	190	Typh.	6	TAB	5	Camps Funston and Cody
								29	107	75	93					
								39	366	120						
								53	140	41	121					
12	June 29	1416914	19	0	4	1	23	19	140	5	12	Neg.	8	TAB	3	Camps Funston and Cody
								29	140	5	12					
								52	140	8	12					
13	June 29	1415911	21	0	7	1	38	21	210	25	62	Para B	8	TAB	3	Camp Dodge
								33	360	50	31					
								39	140	31	6					
								52	360	16	12					
14	June 29	1417325	19	0	10	0	..	19	36	25	31	Neg.	8	TAB	5	Camps Funston and Cody
								31	71	10	31					
								52	36	16	12					
15	June 29	1411834	19	0	4	0	..	19	530	100	62	Neg.	8	TAB	1	Camp Dodge
								27	140	25	120					
								37	360	31	62					
								51	360	16	50					
16	June 30	1415920	17	+	4	1	29	17	250	25	22	Typh. (?)	8	TAB	3	Camp Dodge
								31	710	10	31					
17	June 30	1417306	17	+	8	0	..	17	70	25	22	Typh. (?)	8	TAB	6	Grand Island and Camp Cody
								29	107	25	12					
								51	27	86	12					
18	July 1	1412428	17	+	10	0	..	17	2100	60	31	Typh.	8	?	3	Camp Dodge
								32	36	25	31					
								37	36	31	12					
								50	70	16	12					
19	July 2	1416900	16	0	6	0	..	16	71	50	31	Neg. (?)	11 9	T P	6	Lincoln and Camp Cody
								25	18	10	12					
								49	110	41	12					
20	July 2	1415892	18	+	2	0	..	18	17	10	31	Neg. (?)	8	T	3	Camp Dodge
								26	17	25	31					
								35	71	120	31					
								49	71	31	31					
21	July 2	1417319	15	+	3	1	45	15	1400	10	50	Typh.	8	TAB	4	Camps Funston and Cody
								32	500	25	60					
								49	140	16	31					
22	July 2	1417330	15	0	9	3	34 35 36	15	70	25	19	Neg.	12 10	— —	3 6	Nebraska City and Camp Cody
								26	70	50	31					
								49	140	16	6					

TABLE 4.—BLOOD AND STOOL CULTURES, AGGLUTINATION TESTS AND VACCINATION DATA—Continued

No.	Date of Onset	Identification Number	Blood Cultures		Stool Cultures			Agglutination					Vaccination			Place
			Day of Disease	Result	No. of Examinations	Number Positive	Day of Disease Positive	Day of Disease	Agglutinin Units* Typhoid	Agglutinin Units* Para A	Agglutinin Units* Para B	Interpretation	Months Previous to Admission	Vaccine†	Doses‡	
23	July 3	1416894	16	0	6	0	..	16	360	0	6	Typh.	8	TAB	6	Camp Cody
								25	210	0	0					
								48	27	0	0					
24	July 3	1417290	14	+	6	0	..	14	7	25	12	Neg.	8	TAB	8	Nebraska City and Camp Cody
								25	36	100	60					
								48	36	160	60					
25	July 4	1417065	15	0	3	0	..	15	710	50	62	Typh.	8	TAB	3	Camp Cody
								25	4300	50	120					
								47	530	16	12					
26	July 4	1415891	17	0	4	0	..	19	210	25	120	Neg.	8	TAB	3	Camp Dodge
								24	140	50	62					
27	July 4	1416988	16	0	7	1	31	16	140	50	90	Neg. (?)	8	TAB	4	Camps Funston and Cody
								24	71	50	62					
								47	140	41	31					
28	July 6	1415994	14	+	4	0	..	14	3	50	31	Typh.	8	TAB	3	Camp Cody
								26	210	50	6					
								44	71	16	12					
29	July 6	1416946	12	0	7	0	..	12	36	100	120	Typh.	6	TAB	8	Camps Funston and Cody
								22	71	50	50					
								44	17	41	31					
30	July 6	1417287	12	0	2	0	..	12	17	25	62	Para A (?)	8	TAB	4	Camp Cody
								23	17	100	62					
								44	11	41	12					
31	July 6	1417056	..	..	..	..	..	..	....	..	..	....	..	?		
32	July 6	1415940	11	+	8	0	..	11	1000	50	50	Typh.	8	TAB	3	Camp Cody
								16	1400	100	60					
								21	710	120	31					
								35	210	63	120					
33	July 6	1416947	13	0	4	0	..	13	140	5	62	Para B (?)	11 8	T P	9	Tecumseh and Camp Cody
								23	210	10	62					
								41	140	16	12					
34	July 6	1415915	11	0	6	0	..	11	27	18	30	Para B (?)	9	TAB	3	?
								23	71	25	120					
								44	36	16	12					
35	July 7	1415899	13	+	10	0	..	13	21	50	62	Typh.	6	TAB	3+	Camps Dodge and Cody
								26	36	50	62					
								31	140	37	37					
								44	36	16	37					
36	July 7	1626057	10 20	0 0	10	0	..	10	36	25	5	Typh. (?)	10	T	6	Fort Logan
								20	27	18	5					
								31	36	12	4					
								44	140	16	3					
37	July 8	1417296	12	0	5	0	..	12	36	50	62	Neg.	8	TAB	6	Camps Funston and Cody
								20	17	50	62					
								42	12	8	12					
38	July 9	1417317	10	0	5	0	..	10	36	..	62	Para B (?)	6	TAB	3+	Camps Funston and Cody
								18	71	100	250					
								40	140	25	120					
39	July 11	1411828	8	0	1	0	..	8	17	25	250	Neg.	8	TAB	12	Camps Dodge and Cody
								17	17	25	250					
								39	27	16	62					
40	July 12	1416664	7	0	6	1	15	77	36	50	62	Neg.	9	TAB	6(?)	Camp Cody
								19	36	50	12					
								24	27	31	6					

* Units are determined by dividing the denominator of the fraction which expresses the highest dilution in which agglutination occurs by the correction factor. In this case the factor for typhoid suspension used was 7; for paratyphoid B, 4, and for paratyphoid A, 5, 4 or 5, according to the suspension used.

† In this column, T indicates typhoid vaccine; P, paratyphoid vaccine; TAB, triple vaccine; ? indicates vaccination not entered on service record.

‡ The place of vaccination and number of doses administered are taken from patients' statements, and the figures given are only approximate.

the cases tested early in their course, but are scattered through the list without obvious relationship to the stage of the disease at which they were made. A point that may explain these late positive cultures was very striking when the cultures were made. Blood was taken from ten of the patients the evening they were admitted to the hospital. Of these ten, eight were positive. Of twenty-nine cultures taken after the patients had been in bed twenty-four hours or longer, only four were positive. This at once suggests the possibility that the physical strain these febrile men had undergone was responsible for their persistent bacteremia.

Stool Cultures.[3]—The small number of positive stool cultures obtained was also surprising. The specimens were plated both on Endo and on Krumwiede's brilliant green, and the greatest care was used in studying the colonies. Nevertheless, only about 23 per cent. were positive even on repeated examination.

Agglutinin Reactions.[3]—The serum agglutinins of these patients were studied by the method of Dreyer.[4] In this we were greatly assisted by Dr. A. D. Gardner, of the Standards Laboratories, Oxford, who supplied us with standardized suspensions. The results, which are summarized in Table 4, are interesting from several points of view.

From the diagnostic standpoint these reactions gave us evidence of typhoid infection in a number of cases, typical clinically, in which all cultures were negative. This includes one case (25, Table 4) which was febrile during the patient's stay in the hospital and in which there were no signs or symptoms suggesting typhoid, although the patient gave an indefinite history of illness while at sea. On the other hand, in some cases in which the tests were made at too long intervals there were variations in the agglutinins for paratyphoid A and B, which might have been interpreted as evidence of infection with one of the organisms, although on epidemiologic evidence such a diagnosis can almost be excluded. The result, however, shows the necessity of caution in interpreting results of agglutinin titrations, especially when observations at intervals of a few days during the third and fourth weeks are not made.

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[3] The majority of the stool examinations were made by Dr. T. L. Harkey, and the agglutinin titrations by Miss M. Vaughan.

[4] Dreyer: J. Path. & Bacteriol. 13: 332, 1909.

POSTMORTEM FINDINGS

Necropsies were performed in the five fatal cases in the series. All showed typical typhoid ulceration of the lower ileum. A very striking feature was the enormous enlargement of the spleen in the first two cases, in one of which the patient died early in the disease (twelfth day). In both these cases the spleen weighed over 500 gm., was very firm, and the pulp on section rather dry; the spleen wholly unlike the typical soft spleen of typhoid.

In the first case, in which the patient died on the twelfth day, the Peyer's patches were in the stage of medullary swelling. In the second case (thirty-second day) there were large, deep ulcerations with hemorrhage into the bowel. In the third case (thirty-seventh day) also there were deep ulcers, one of which had perforated and caused a local peritonitis. The two remaining patients, who died on the thirty-fourth and thirty-sixth days, showed ulcers in the stage of repair. One died of bilateral lobar pneumonia, with empyema, due to Pneumococcus Type I. In the fifth case new lymph follicles had become involved and were in the stage of medullary swelling — evidently a recrudescence. The fifth patient had an intramuscular hematoma of the rectus abdominalis. The first and fourth cases showed thrombosis and infarction of the lung. In the fourth, the infarct was surrounded by a large area of lobar pneumonia. No other complicating lesions were observed.

In the first two cases, typhoid bacilli were isolated from the spleen. Cultures from the third case were heavily overgrown with colon bacilli, and *B. typhosus* was not recovered. In the fourth and fifth cases, cultures from the spleen were negative, but the typhoid bacillus was found in the gallbladder.

COMMENT

The most interesting question that arises in regard to these cases is: Why did this large group of vaccinated men become infected? To this, three possible answers present themselves: First, that the vaccination was defective; second, that the infection was due to the abnormal race of *B. typhosus* against which the vaccine did not protect; third, that the men received an overwhelming dose of the infecting organism.

The first hypothesis seems improbable from the fact that the men were vaccinated at different camps and at different times, so that it is hardly possible that all received the same batch of vaccine. Additional evidence on this point is seen in the record of their agglutinins for paratyphoid A and B (Table 4). When first examined, the majority had from 25 to 100 agglutinin units for these organisms in their serums. This means agglutination in dilutions from 1:100 to 1:500. It is no lower than frequently found in healthy soldiers from eight to twelve months after vaccination, and shows that the vaccine was good and that the men reacted to it. It is true that a few men in the series had a very small amount of agglutinin or none at all for these organisms, even when their records stated that they had received triple vaccine; but this fact could not explain the majority of the infections.

It might be suggested that the paratyphoid agglutinins that were observed in these cases were group agglutinins, due to the typhoid infection and not to the paratyphoid vaccination. It has been the experience of Dreyer and his co-workers that group agglutinins of this sort are not encountered.[5] Moreover, it was readily shown in cases that were tested by absorption that the three agglutinins were distinct. The possibility that these infections were due to defective vaccine can, then, practically be excluded.

As to the second hypothesis, that the infections were due to an abnormal strain of typhoid, we have no positive evidence. All the strains isolated gave characteristic fermentation results on glucose, lactose, mannite and saccharose; and all with one exception agglutinated in typhoid immune serum in about the same dilution as the homologous strain. One strain isolated from the blood (24, Table 4) has remained inagglutinable so far, although its cultural reactions are typical.

It has been shown by Weiss[6] that minor differences both antigenic and cultural can be brought out between certain races of *B. typhosus*. We propose to investigate these strains further in this respect.

In the absence of evidence that the prophylactic immunization of these men differed in any way from that which has, in the vast majority of cases, given adequate protection, or that the strain of typhoid with which they were infected was atypical, there remains the hypothesis that they received an excessive dose of typhoid bacilli.

CONCLUSIONS

1. Owing to the lateness in the course on admission to hospital, cultural confirmation of clinical diagnosis was impossible in a considerable number of cases. The fact that all of these men had received routine immunizing vaccine during the past eleven months made the ordinary Widal reaction unreliable. Careful clinical study, however, justifies a positive diagnosis in thirty-eight of the cases.

2. That severe typhoid may occur in vaccinated men is proved by this series of cases.

3. The occurrence of uniformly low white blood counts in this series again illustrates the diagnostic value of routine blood examination in all febrile conditions.

4. It is felt that the atropin test may be of great value in the diagnosis of typhoid fever, although the smallness of this series, the impossibility of laboratory confirmation of diagnosis, and the lack of control cases makes authoritative conclusions in this matter impossible.

5. It is hoped that the explanation of the lamentably high mortality rate (13.15 per cent.) may be found in the average lateness in the course of disease on admission to the hospital.

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[5] Walker, E. W. A.: Lancet 2: 896 (Nov. 25) 1916.

[6] Weiss, H.: J. M. Res. 35: 403 (Jan.) 1917.

Checking the Senses.—Bear in mind that each of you, the field commander of your own life's warfare, lives in a dugout. You are helpless except for your lines of communication, your senses. Guard them as a most precious possession. Train them to do their work well; watch them; suspect them. Send your eyes to spy on your ears. Bring up smell to reinforce vision. Suspect the message and send the messenger back again to examine, and again to reexamine, until you are sure the news is true; sure that the valvular sound is such and no other; sure that the reflex is absent; sure that the urine contains albumin; sure beyond a doubt of the thousand items of sense information that come to your headquarters and are needed in your business—the warfare on disease.—E. P. Lyon, *Texas State Journal of Medicine.*

THE EARLY DIAGNOSIS OF GAS GANGRENE

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The literature on the subject of gas gangrene is already so voluminous and so comprehensive that any one attempting to contribute further to it must have a very good reason for doing so. With our present methods of treatment, however, the early clinical recognition of this condition is of such outstanding importance to the good of the wounded men that it has seemed that undue emphasis cannot be placed on it.

Conditions of war surgery are such that the men who operate on the patients are seldom able to make the dressings. The first dressings are often made in different hospitals from those in which the patient was operated on. When the patient is first brought up for operation, gas gangrene may already be present, or it may develop after the operation. In the latter case, the responsibility for the early recognition of gas bacillus infection rests practically entirely on the shoulders of the men who make the dressings.

Examination of the statistics of the causes of death of patients in American Paris hospitals during a recent drive afforded very convincing evidence of the menace of gas gangrene. In the protocols of 100 consecutive necropsies performed by Major H. E. Robertson, M. R. C., I noted that in 33 per cent. of the cases the probable cause of death was the injury plus gas gangrene, and in 8 per cent., the injury plus gas gangrene plus other causes, as pleuritis or hemorrhage. In a large group of these cases, the diagnosis was made too late to be of any service to the surgeon.

Many writers have described various forms of gas gangrene. Weinberg and Seguin[1] distinguish (*a*) the classical or emphysematous form; (*b*) the toxic, or edematous, form; (*c*) the mixed form, and (*d*) the putrid varieties. They have cultivated numerous organisms from gas gangrene cases, but believe that the leading rôles are played by (*a*) *B. perfringens* (*B. aerogenes-capsulatus* of Welch); (*b*) *B. oedematiens*, and (*c*) *vibrion septique*. As one or another of these micro-organisms predominates, correspondingly, certain sets of symptoms seem to be more evident. From the standpoint of the clinician, who is eager to learn the best means of arriving at an early diagnosis, it seems safest to consider gas gangrene as a clinical entity of multiple etiology and one in which the most striking sign or symptom is not always the same in all cases.

Taylor[2] has classified the various stages in the course of gas gangrene as: (1) dormant stage; (2) stage of acute gaseous distention; (3) explosive stage; (4) stage of systemic intoxication, and (5) stage of septicemia. It is in accordance with my purpose in this paper to omit all discussion of the first, third, fourth and fifth of these stages, and the etiology, bacteriology, pathology and treatment as well, and to confine the study to the consideration of the best methods of recognizing the stage of acute gaseous distention, particularly in postoperative wounds. If the infection is recognized in this second stage, it is generally possible to forestall its progress to later stages by prompt and adequate surgical treatment. If the disease has reached the third or succeeding stages without operation, the diagnosis offers little difficulty.

FACTORS TO BE CONSIDERED IN ARRIVING AT AN EARLY DIAGNOSIS

1. *The Patient's Chief Complaint.*—The patient may have no complaint. Pain in the region of the wound, however, is a very common complaint and one that should always command attention. Taylor believes that pain of short duration followed by numbness is characteristic. The Chaliers[3] refer to the frequency with which patients ask to have their bandages loosened. Pain in the limb distal to the wound has been mentioned.[4]

2. *History.*—The length of time after the receipt of the injury is of first importance. All wounds are to be suspected and watched for a period of from six to eight days. Wounds are not immune from gas bacillus infection after that time, as is shown by the interesting case of Penhallow[5] in which, though the wound had healed and the operation was performed two months after the injury, it stirred up a latent gas infection. The patient may know whether the missile which struck him was a machine gun bullet or a fragment of shell. A history of previous operation or operations may be elicited, and if these have been performed, the time interval between the injury and the first operation should be learned.

3. *The General Condition of the Patient.*—Generally the euphoria and maintenance of intelligence is very striking, which is in accord with the observations of Chalier and Chalier.[3] We cannot agree with one author[4] that drowsiness is a marked symptom. Albrecht[6] notes restlessness.

The temperature is not characteristic, though it may be elevated. Speed[7] considers the lack of high fever of importance. Col. Joseph A. Blake calls attention to the frequency with which low temperatures are found.

The pulse is very important, for it is almost invariably increased in frequency. It is of great help to the surgeon to have the pulse rate curve placed on the bedside chart along with the temperature curve. A high elevation of the pulse rate without corresponding increase in the temperature should attract the surgeon's attention. Colonel Blake considers the crossing of the pulse and temperature curves very characteristic.

The respirations are generally more rapid, though "dyspnea has a greater prognostic significance than diagnostic value."[3]

The tongue is commonly dry. Vomiting has been observed,[8] but is uncommon.

4. *Inspection.*—The type of wound is of first importance. Gas gangrene is essentially a disease of traumatized muscle (Taylor) and consequently is most frequently found when the wounds are in the large muscle masses. The thigh, the shoulder muscles and the calf are frequent sites of election. Wounds made by shell fragments with the foreign body still buried in the

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1. Weinberg and Seguin: La gangrène gaseuse, Paris, Masson & Cie, 1918.

2. Taylor, K.: J. Path. & Bacteriol. **20**: 384, 1916.

3. Chalier, A., and Chalier, J.: La gangrène gaseuse, Paris, Librairie Felix Alcan.

4. Zindel, L.: Bruns' Kriegschr. **31**: 257; abstr., Brit. M. J. **2**: 466 (April 7) 1917.

5. Penhallow, D. P.: Lancet **1**: 866 (April 22) 1916.

6. Albrecht: Wien. klin. Wchnschr. **30**: 950, 1917.

7. Speed, Kellogg: Localized Gas Infections in War Wounds Treated by Muscle Group Excision, J. A. M. A. **70**: 225 (Jan. 26) 1918.

8. Emrys-Roberts, E., and Cowell, E. M.: J. Path. & Bacteriol. **21**: 473 (October) 1917.

tissue are almost certain to be infected with one or more of the causative agents of gas gangrene. Even apparently clean, through-and-through machine gun bullet injuries with sealed wounds of exit and entrance may develop gas gangrene. While gutter wounds are perhaps among the safest, if there is obvious dead muscle tissue present, they too are to be suspected. Wounds that have undergone no surgical treatment are very liable to develop gas gangrene, owing to the presence, along the missile tract, of masses of traumatized and necrotic muscle, which is very favorable to the growth of the gas bacillus and other etiologic agents. Wounds that are widely opened and debrided are unfavorable to the growth of anaerobes, to which class most of the organisms of gas gangrene belong. Poor gas drainage is responsible for the spread of the gas in the muscle bundles, and in consequence is in a large measure responsible for the spread of the infection itself.[9] As gas drainage is generally very adequate in open wounds, there is less chance of the extension of the infection in these cases. If the débris of the wound has already been removed, the extent of the operation must be judged to be ample or insufficient. "Wounds involving main blood vessels, for example, the popliteal artery, are notorious for the frequency with which gas gangrene develops in the distal segment of the limb."[10] In these cases the organisms of gas gangrene find an excellent medium for their growth in the muscles whose vitality has been diminished by the depletion of the blood supply.

The site of the suspected gas gangrene must be examined to see if it has been subjected to continuous pressure, as with the buttocks and back in many cases, for it is known that metastatic gas gangrene may develop in parts of the body widely distant from the wound, if these parts have an impaired circulation from pressure owing to failure to change the patient's position in bed from time to time.[11]

The most important single sign seems to be the swelling. It is invariably present. Any swelling about a recent battle or operative (war) wound should be considered to be due to gas gangrene unless it is proved to be otherwise. The swelling is often fusiform in shape on account of the fact that in the early stages the gas confines itself to the muscle bundles along which it travels longitudinally. It may affect an entire limb or it may be limited to one border of a wound. When there is a large open wound with good opportunity for gas drainage the tension will be less and the swelling smaller or perhaps purely local in character. Taylor has photographs of a case in which the gas has lifted up the fascia lata tensor to the level of the patella on the anterior surface of the thigh. It is only the smaller swellings that interest us in the early diagnosis; when the swelling is very large, the diagnosis has by that time generally been well established.

The color changes in the skin have been very carefully described by Col. Cuthbert Wallace.[12] He notes that at first the skin is paler than normal, owing to the blood's having been driven out of it by pressure. Then "a dirty cream tint gradually appears and may be taken as a sure sign that gangrene is established." Next, irregular purple areas which enlarge and coalesce appear. By this time blebs have formed, and the dermis under them is a shining purple-red. Finally, a yellowish green tint is seen. In some cases the whole body may have an icteric tinge. Emrys-Roberts and Cowell[8] find that "the sclerotics become distinctly icteric." In mixed infections the skin may be red, as in ordinary pyogenic infections. The erysipèle bronzé is occasionally seen.[13]

The increased visibility of the superficial veins has frequently been noticed in the neighborhood of gangrene.

In case a portion of muscle is exposed in the wound so that its color may be observed, the successive changes as the gangrene progresses are brick red, green and finally black.[12]

Taylor has called attention to the bulging of the muscles from the wound that is sometimes found with gas gangrene.

The discharge may be said to be characterized by a absence of suppuration. If the discharge is increased thin, and pale brown,[14] gas infection is to be suspected Sacquépée[13] finds that the discharge varies from red brown to violet.

Blebs on the skin occur so late in the course of th infection as to be unimportant in the making of a early diagnosis.

5. *Odor.*—The odor from a wound infected with ga gangrene is generally considered to be very characte istic, and various attempts have been made to descri it. Speed says that it is "fetid and extremely pen trating, resembling that from the thin stool of a infant suffering from extreme enteritis and acidosis The Chaliers,[3] however, consider the odor mouseli and say that it is neither putrid nor fecal. Taylor sa that the odor of butyric acid may be recognized in t odor of gas gangrene.

6. *Palpation.*—Crepitus has long been identified wi gas gangrene. When a limb whose tissues have be infiltrated with gas is gently palpated, a very defini fine crepitus may be elicited. This is an importa sign, but it is far from an infallible one. It is due the passage of gas bubbles through the foramina in t muscle sheaths. Kenneth Taylor and also Wallac contend that the muscles become resonant from t presence of gas long before they become crepitant the finger. Wallace says that crepitation does necessarily mean microbic infection and is a l phenomenon; and moreover, that it is not alw present with gas. The sensation of crepitation m also occur in fractures, following incorrect inject of serum; in the mechanical emphysema occurr sometimes in wounds of the limbs near flexion fol in laryngotracheal wounds; in chest wounds; in s cutaneous emphysema in intestinal wounds; in wou of the rectum with emphysema of the thigh; in he toma with gas; in plegmon gaseuse;[3] and Tuffi mentions certain gangrene in vascular lesions whic able momentarily to contain gas.

On palpation, the swelling frequently has an ela tense consistency which readily may be distinguis from the fluctuation of an abscess or the pitting edema.

Induration is not uncommon, and is particularl be found in those cases in which gas gangrene deve on the border of an open wound. It is probably n frequently found in cases in which the gas infec is complicated by the presence of pyogenic organisms.

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[9] Taylor, Kenneth: Lancet 1:123 (Jan. 15) 1916.

[10] McNee, J. W., and Dunn, J. S.: Brit. M. J. 1:727 (June 2) 1917.

[11] Taylor, Kenneth: Ann. Surg. 64:641 (Dec.) 1916.

[12] Wallace, Cuthbert: Brit. M. J. 1:705 (June 2) 1917.

[13] Sacquépée, E.: Presse méd. 26:197 (April 18) 1918.

[14] Albrecht: Wien. klin. Wchnschr., 30:950, 1917.

[15] Wallace, Cuthbert: J. R. A. M. C. (May) 1917.

[16] Tuffier: Bull. et nérv. Soc. de chir. (Nov. 3) 1914.

Tenderness on palpation is generally present, but there is not the exquisite pain found in inflammations of a pyogenic nature, except, perhaps, in cases of mixed infections.

By pressure with the flat of the hand toward the wound edges, frequently small gas bubbles may be milked into the wound. When present, this is practically a sure sign of gas infection; but the process is generally fairly well advanced by the time it is demonstrable. Moreover, care must be taken not to mistake air, which may normally be present in the deep recesses of the wound and which may similarly be pressed out, for gas bubbles.

Edema may be present to a certain extent in some forms of the infection. According to many authors, it is due, when present, to *B. oedematiens* of Weinberg and Sequin. It may be present also in cases in which the pressure of the gas has caused venous obstruction.

The muscle, if present in the wound, may be tested for contractility by pinching with a forceps or for bleeding by scraping. If either of these signs is absent, it is tolerably safe to assume that the muscle is dead. Dead muscle, if gas infection is not already present in it, eagerly invites its development.

7. *Percussion.*—On percussion, a limb distended by gas infection gives a tympanitic note. This test is believed to be of considerable value in the early diagnosis.

8. *Auscultation.*—An early method of demonstrating crepitus is to press the bell of the stethescope on the affected limb; a crackling may be heard in this manner, before it can be palpated.

9. *Roentgenoscopy.*—Roentgenologic examination is a helpful means of arriving at an early diagnosis. Morgan and Vilvandre[17] have demonstrated the presence of gas entirely unsuspected until revealed by the rays during routine examinations for pieces of metal or fractures. The roentgenographic appearance of the gas is usually that of: (*a*) bubbles in strings; (*b*) broad cast; (*c*) in a layer under the skin; (*d*) with a cloudlike outline to the shadows, or (*e*) as a striation.[16] The bubbles need not be circular, but may fit the shape of the cavity they are in. Agnes Savill[18] is even so sanguine as to the power of the roentgen ray that she believes she can determine by it the variety of gas infection in some cases. Among the causes of failure that one must beware of in making a diagnosis of gas gangrene from the roentgenogram are: ecchymosis; syringing the wound with hydrogen peroxid; (25) shadows made by wounds; surgical emphysema; normal structures (popliteal space, bursae), and hematomas.

10. *Cultures.*—Culture of the wound is not of great value. Though the gas bacillus may generally be identified within eight hours by its growth on milk, the gangrene may spread rapidly within that time. A negative culture is of no value, and a positive culture is not infrequently found in wounds that are wide open and will never require further surgical intervention.

11. *Aspiration of Gas.*—Diagnostic aspiration of gas from muscle is occasionally of value in making a diagnosis.[2]

12. *Smears.*—Microscopic examination of smears made from the wound is of no value when negative and of but slight value when positive, for even then surgical therapy may not be indicated.

13. *Reaction.*—The reaction of the wound has been tested as an aid to diagnosis, for Sir Almroth Wright[19] showed that the organisms of gas infection tend to make acid the medium in which they grow; but little stress is to be placed on this test clinically.

REPORT OF CASES

The cases reported are of interest because of the problems of diagnosis that they offered.

Case 1.—Private C. C. C., aged 28, wounded, July 29, 1918, admitted to American Red Cross Military Hospital No. 2, July 30, had a gunshot wound, received in battle, in the middle of the right thigh, posteriorly. Gas infection was present. Roentgenoscopy revealed a foreign body measuring 30 by 40 mm. in the right buttock. July 30, the wound débris and the shell fragment were removed. Carrel-Dakin treatment was instituted. The condition of the wound seemed satisfactory until August 4 (six days after admission), when a small, indurated, red area on the upper border of the wound was noticed. The temperature was 103 F. and the pulse 70. No diagnosis of gas gangrene was made. August 7, the wound was examined and dressed under an anesthetic in the operating room, but the surgeon decided that no operation was necessary. August 9, gas bubbles could be pressed out of the wound. The temperature was 103.4 and the pulse 98. The patient was taken to the operating room and a very wide débridement was done. The patient recovered from the shock of operation only to go into a toxic state, and he died the following morning. This case is of interest for the fact that though the patient was carefully watched by several observers, the diagnosis of gas gangrene was not made until it was too late to save the man's life.

Case 2.—Private C. W., aged 22, wounded, Aug. 4, 1918, admitted to American Red Cross Military Hospital No. 2, August 8, had received a through-and-through gunshot wound of the left thigh and left foot. The wounds were probably due to machine gun bullets. There was a marked hematoma of the left thigh. Roentgenoscopy was negative for a foreign body and the patient was sent to the ward for observation. August 11 (three days after admission and six days after the injury), the patient complained of pain in the thigh. The temperature was 100.4 and the pulse 120. Roentgenoscopy showed that the muscles of the thigh were spread apart and that there were light spaces in between them. It seemed probable that there was a gas bacillus infection. There was, however, a large hematoma. Numerous Carrel tubes were placed. The temperature gradually came down to normal after a week, and recovery seems assured today (Aug. 21, 1918). This case is of interest because the hematoma produced the roentgenographic appearance of gas in the muscle, and because, though diagnosis was not assured, decision to operate was made. There can be no regrets on failure to find gas in a suspected case, and the surgeon's course here seems to be entirely justified.

CONCLUSIONS

1. There is no single early pathognomonic clinical sign or symptom of gas gangrene. The condition is a syndrome, and the diagnosis generally depends on the combined presence of several signs or symptoms.

2. For an early diagnosis of gas gangrene, the more reliable factors are: history of a recent wound; swelling; increased frequency of pulse rate; tympany; crepitus (auscultatory and palpatory); pale color of skin; odor; ability to milk gas bubbles out of wound; thin discharge; roentgenographic findings, and maintained intelligence of the patient.

3. It is to be recommended that all swellings about wounds be considered as due to gas gangrene until proved to be otherwise. In cases of doubt, the wounds

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[17] Morgan, J. D., and Vilvandre, G.: Brit. M. J. 1:8 (Jan. 6) 1917.

[18] Morgan and Vilvandre (Note 17). Savill, Agnes: Arch. Rad. & Elec. 21:201 (Dec.) 1916.

[19] Wright, A. E.: Lancet 1:1 (Jan. 6) 1917.

must be reinspected at intervals of not greater than two or three hours, or even subjected to surgical exploration. The responsibility of the early recognition of gas bacillus infection rests practically entirely on the shoulders of the men who dress the wounds. All roentgen-ray men who do not already do so should look for evidences of gas infection in every examination of war injuries made within ten days after the receipt of the wound.

RECONSTRUCTIVE SURGERY

THE PROBLEM OF RECORDS *

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In the treatment of diseases and disabilities of the joints there has always existed the difficulty of making suitable records. The difficulty has been one not only of accuracy, but also, to a much greater extent, of clearness and intelligibility. Where one surgeon, referring to movement at the shoulder joint, speaks of abduction of the arm, another speaks of elevation of the arm, and a third of side raising.

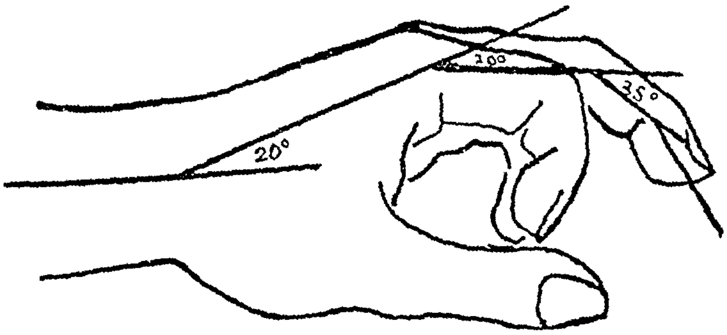

Fig. 1.—A stiff middle finger of the left hand that *cannot* be flexed voluntarily more than is shown. How can we record rapidly, accurately and intelligibly its position of deformity as well as range of motion? This is absolutely necessary so that improvement *or* its absence can be noted. The first step is to be able to record every possible position of the finger, as in this way we can note how far it flexes voluntarily, and how much more flexion can be gained by force: the *same* two points to be noted as regards its power of extension.

In the case of a stiff knee, almost hopeless confusion may exist in its actual description. One surgeon in his case report will speak of a straight leg as being fully extended, while a confrère will likely refer to it as showing 180 degrees extension.

These difficulties reached a climax when in Canada the board of pension commissioners at Ottawa was inundated with thousands of reports on joint disability and deformity, made by thousands of different army surgeons. Their descriptions depended almost wholly on words for accuracy, and were seldom aided by diagrams. Though they were correspondingly difficult to interpret, nevertheless on the accuracy of their interpretation by the pension commissioner depended the fairness of the pension adjustment. The government in self defense thereupon caused to be printed a series of charts showing the extremities, with the range of motion marked in degrees, and required these to be filled in by the examining surgeons. These charts worked well as far as the larger joints (knee and elbow) were concerned, but in the case of the hand they were not so successful.

In Hart House, Toronto, where some of the most advanced work in physiotherapy has been done on this side of the water, the relative position of one bone to another at a joint, as well as joint movement itself, is very accurately recorded on charts, one of which is reproduced in the accompanying table. These charts are arranged to accommodate practically every joint in the body, and show not only degrees of motion, active or passive, but also the strength of movement. These charts, needless to say, were meant to be used in conjunction with Prof. E. A. Bott's splendid series of mechanotherapy apparatus. Each machine has a dial by which its motion (active and passive) can be measured accurately in degrees. By using the Bott machines and recording the results on the charts provided for the purpose, the workers in the mechanotherapy room at Hart House were able to furnish themselves with a splendidly accurate record of joint deformity and motion which marked a great step forward in the scientific treatment of the surgery of the extremities.

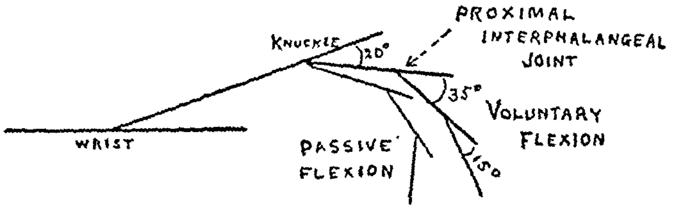

Fig. 2.—Flexion record of left middle finger, same case as recorded on Hart House chart. We are marking these angles in degrees for the sake of clearness. It will be noted that the lines represent the axes of the phalanges and metacarpal bones. No account is taken of the carpal movements, but only of the wrist as a whole.

Strength of motion at the various joints was estimated and recorded in percentages, the sound side being reckoned as 100 per cent. strong. No attempt was made in estimating strength to use a dynanometer or to calculate foot pounds, as it has been found that such methods were too elaborate for a busy clinic. The workers were trained to estimate the strength of a certain movement as compared with that of the corresponding movement on the opposite side.

When the Clinic for Functional Reeducation was opened in July, 1918, it had already had the benefit of a visit from Professor Bott, whose collaboration was greatly appreciated. The measures in use at Hart House at that time showed the high water mark of scientific efficiency and accuracy, and an opportunity was taken by several of those connected with the clinic to study them during a stay in Toronto.

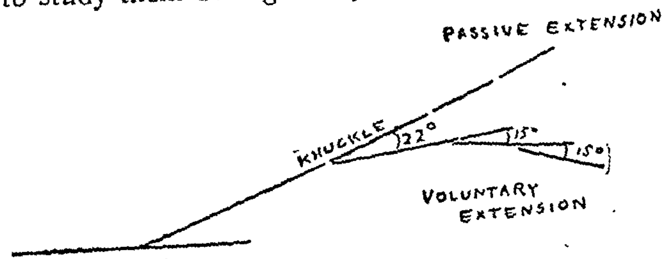

Fig. 3.—Extension of left middle finger.

The mechanotherapy room at the Clinic for Functional Reeducation is equipped with apparatus from two main sources, and to Major Tait McKenzie, R. A. M. C., professor of physiotherapy at the University of Pennsylvania, we are chiefly indebted for encouragement and assistance. As the work grew in volume it was noted that, especially in hand and finger cases, accurate tabulation of deformity and motion on the charts meant a somewhat tedious undertaking. The results also, while undeniably accurate,

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11. Tay
12. Walt the Clinic for Functional Reeducation.

were also rather unintelligible. In an effort to remedy the multiplicity of findings, recourse was had to diagrammatic drawings representing the hand and fingers. These drawings were made free hand, and in them a single line or succession of lines represented forearm, wrist, and each of the three phalanges. They were used in conjunction with the Hart House charts and had the advantage that they showed at a glance the position of the various joints of wrist and fingers. No attempt was made to record strength of movement graphically, but active and passive motion, whether in flexion or extension, was shown on the diagram.

HART HOUSE CHART

Middle Finger (Left)	Movement Active	Passive
Prox. flex.	20°	35°
Ext.	Lacks 5° of full	Full
Med. flex.	40°	45°
Ext.	Lacks 20° of full	Full
Dist. flex.	20°	45°
Ext.	Lacks 30° of full	Full

This is quite an accurate record of the finger, but takes a very long time to estimate and put down, and equally long to get a connected idea from reading it.

We have so far found the graphic method of such benefit to us in our hand cases that its use is now gradually extending to the larger joints.

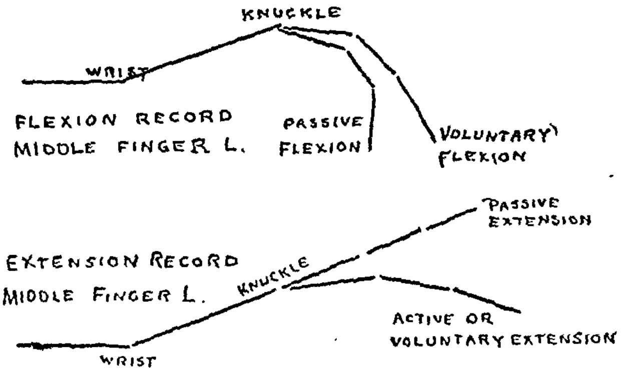

Fig. 4.—Graphic records, simplified and as in actual use. These take very little time to sketch free hand. If actual measurement in degrees of a joint is wanted, the sketch is used and the angles are measured

A few illustrations are appended of the graphic methods as used at the Clinic for Functional Reeducation in the hope that reconstructive surgery in general and the work of the War Risk Insurance Bureau in particular may be lightened.

5 Livingston Place, Stuyvesant Square.

Platinum.—In an article on platinum in *Commerce Reports* it is said that previous to the war 90 per cent. of the world's output of platinum was produced in Russia. The Russian field and the newer and less developed field in Colombia, South America, constitute the world's two important sources of this valuable metal. Notwithstanding the great demand for the metal in carrying on important processes during the war, the production in Russia fell off from about 300,000 ounces in 1911, to about 78,000 ounces in 1916. To counteract this in part, production in the Choco district of Colombia increased from 12,000 ounces in 1911 to about 50,000 troy ounces in 1917, an increase of 300 per cent. in this practically new field. In addition to the usual employment of platinum in electrical apparatus, crucibles, etc., the requirements were greatly increased during the war on account of the greatly enhanced needs for internal combustion engines for airplanes, automobiles, tanks and motor boats, the manufacture of fuming sulphuric acid, in which platinum is employed as a catalyzer or changer, important in munitions manufacture, and in the manufacture of nitrogen from the air, also required for explosives.

Clinical Notes, Suggestions, and New Instruments

HERNIA THROUGH THE FORAMEN OF WINSLOW: REPORT OF A CASE

J. E. Engstad, M.D., Grand Forks, N. D.

H. B. was referred to me by Dr. Knutson of Buxton, N. D., and admitted to St. Michael's Hospital in this city, about midnight, August 3, suffering from intense pain in the epigastric region.

The patient gave a history of sudden attack of pain while lifting a heavy object about twelve hours before admittance. The family physician was called, who immediately recognized the gravity of the case and ordered the patient sent to the nearest hospital. The journey of more than 20 miles was accomplished in an automobile improvised as an ambulance.

The abdomen was very rigid and sensitive to pressure, and a tense mass was felt in the right epigastric region. The pulse was about 36, heart beats 90, the organ being in a state of auricular fibrillation, and temperature, 103. The kidneys and lungs were normal. After a speedy preparation a long incision was made, and immediately there protruded large masses of dilated and congested intestine filled with fecal accumulation.

The strangulated intestine was soon recognized as being a part of the upper portion of the jejunum, about 75 cm. from the fossa of Treitz, the strangulated portion being caught in the foramen of Winslow. Traction was first made to relieve the impacted intestine, but the strangulated loop had already become edematous, and it was found necessary to introduce the tip of the index finger into the tight opening, carefully severing first the peritoneal covering and gradually the connective tissue of the opening, extreme care being exercised not to injure the immediately overlying structures, the portal vein or the common duct. All the structures underlying these canals had to be cut before the impacted loop could be released, the latter being accomplished by application of moderate traction.

The loop was immediately covered with warm packs; the intestine was then opened and emptied of pancreatic fluid and bile, after which the opening was closed by the usual intestinal sutures, silk and catgut being used.

The injured intestinal tract at once showed unmistakable signs of restored circulation. The operation was completed by the introduction of two small drains and the usual closure.

No effort was made to close the large foraminal opening, this omission being based on, first, the supposition that an enlarged opening would not again implant any loop of the intestine that might be forced into the cavity, and, secondly, the great danger of traumatizing the vein.

The drains were removed the second day.

The patient rallied immediately, and the progress toward recovery was rapid and without any incident up to the tenth day, when, without any previous warning, there was a rise in the temperature, the wound opened up, and a profuse serous discharge appeared. This rapidly changed in character, at times to bile and pancreatic fluid. The fat underlying the skin rapidly sloughed away, and on the whole the case looked rather unfavorable. On the thirteenth day an orange seed appeared in the discharges, which immediately relieved our misgivings, for instead of a fistula of the common duct, we now knew that we had a small intestinal leakage from the drainage incision in the intestine, which was about 40 cm. from the duodenojejunal fossa, or 60 cm. from the ampulla of Vater. The secretions from the fistula appeared at times almost unchanged bile and pancreatic fluids.

In due time the opening was packed, which controlled the discharge of the secretions, and the wound healed rapidly. The patient was discharged from the hospital five weeks after the operation, with good health, the wound being healed with the exception of a space about an inch square, filled with granulation tissue.

COMMENT

The large death rate from operative procedure for hernia into the foramen of Winslow is due, no doubt, in a great measure to the constriction of the intestine in its most vital portion, the so-called medulla oblongata of the intestinal tract, where are located the secreting glands of the upper bowel, whose functions are to supply the still partially mystifying hormones, whose reabsorption is speedily followed by death.

Bile and pancreatic fluid are constantly pouring into the distended intestine, adding their quota to the rapidly accumulating deadly contents of the dilated intestine.

The vital point of any operation for the relief of accumulation in this part of the intestinal tract is the mechanical emptying of all accumulated fluids by a large transverse incision in the intestine at a point midway between the normal portions. The emptying should be performed by gentle milking; otherwise the traumatized blood vessels might become injured and emboli might rapidly form in the mesentery veins or arteries, which, of course, is concomitant with death of a segment of the bowel.

Whether the introduction of the drains predisposed to the fistula is a problematic question.

REPORT OF CASE OF FAT EMBOLISM

R. M. Harbin, M.D., Rome, Ga.

History.—A married woman, aged 56, rather compact and stoutly built, sextipara, weighing 150 pounds, had had normal health in every respect until two years before admittance to the hospital, when she suffered an attack of appendicitis which passed off in three or four days. Aug. 12, 1918, there occurred a more severe attack in which the bowels had been made to move with difficulty. Two months later there was another attack with diarrhea, and subsequent difficulty was experienced in moving the bowels. This attack passed off in ten days, leaving tenderness diffused over the right abdomen. This persisted until the attending physician advised the patient to enter the hospital, November 15.

Examination.—The heart and lungs were normal, and blood count revealed: red cells, 3,860,000; white cells, 7,400; hemoglobin, 80 per cent.; polymorphonuclears, 63 per cent.; large lymphocytes, 3 per cent.; eosinophils, 1 per cent; small lymphocytes, 32 per cent. Urine and feces were negative. Palpation revealed a diffuse induration in the right lower quadrant. The barium-buttermilk meal revealed normal size and motility of stomach and delayed passage at ileocecal valve, and then stagnated at the caput coli at forty-eight hours. A colon injection of barium-buttermilk joined this delayed bolus.

Operation and Result.—A diagnosis of intestinal obstruction from adhesive remains of a previous peritonitis was made, and laparotomy advised and executed. After morphin-gas-ether anesthesia, through a 6 inch right rectus incision there was revealed a diffuse matting of coils of the lower ileum about the ileocecal junction. The operation was tedious, and the manipulations were severe, lasting two and one-half hours. The remains of the appendix lay buried in dense adhesions in the right iliac fossa. In the dissection of these bands of adhesions, quite a portion of the parietal peritoneum was destroyed, and it was found impossible to cover the denuded area.

Apparently the patient stood the operation well, reacting to consciousness promptly, and all the time retaining a pinkish color. Just before operation the pulse was 84 and temperature 97, and she left the operating table with a pulse of 98, which remained unchanged for seven hours, when it rose to 106 and then to 124. She had had two doses of morphin, one-eighth grain each. She became restless, with occasional vomiting. One quart of saline infusion had been given by rectum. Twelve hours after operation she complained of air hunger, yet the skin remained somewhat pinkish. The pulse was imperceptible at the wrist, and the heart sounds seemed frictioned and souffled. As we feared a concealed hemorrhage, the incision was opened after nitrous oxid-oxygen anesthesia, which was preceded by one-fourth grain of morphin and 1/150 grain of atropin. The peritoneum was tense and, when opened, about 100 c.c. of a soupy fluid escaped from tension. The patient died twenty-four hours after operation.

Necropsy.—The incision was opened, and 30 c.c. of fluid, aspirated from the pelvis, showed globules of fat. The left ventricle was tapped, and 50 c.c. of blood had the appearance of dark reddish orange juice. This specimen within ten minutes formed a firm coagulum quite the size of the original quantity of blood. This specimen was beaten up and washed with ether, which was then evaporated. The residue, on being stained with sudan III, showed fat. The peritoneal fluid was treated in the same way and showed quantities of fat.

INTRAPERITONEAL ABSCESS CONTAINING ROUNDWORMS

F. H. Jackson, M.D., Houlton, Maine

This case is reported because of its rarity. In the surgical literature cases have been reported in which the ascaris has entered the larynx and various portions of the hepatic system. Intestinal obstruction has been caused by masses of the parasite, and other cases similar to this one have been reported.

History.—B. B., a girl, aged 16, was admitted to the Madigan Memorial Hospital under my care, April 27, 1917. She had been operated on in the same institution, Jan. 20, 1916, for an intraperitoneal abscess caused by a ruptured appendix. Following the operation she had been critically ill for a number of days, but was discharged as well, March 4, 1916. The hospital records do not have any statement from the attending surgeon as to whether or not the appendix was removed. April 27, 1917, she came for relief of very severe pain in the entire lower abdomen. The temperature was 101, the pulse 120, and there was intense nausea and profuse vomiting. The present severe clinical condition had been present about thirty-six hours; but for several days the patient had not felt entirely up to par. Up to about forty-eight hours before her admittance to the hospital she had felt well excepting that for about two weeks she had had more or less residual tenderness in the lower right abdominal quadrant, cramplike pains that at times were quite severe, and more or less tendency to nausea. The climax seemed to come about thirty-six hours before admittance, when she had a frightful sudden attack of pain in the lower abdomen. The bowels became distended, no relief was obtained from cathartics, which were promptly vomited, and very little from enemas.

Examination.—The girl looked far more ill than the recital of the history would indicate. She was of a dirty greenish yellow color, was covered with a cold, clammy sweat, and moaned with pain. The lower abdominal muscles were extremely rigid, and there was abdominal distention. The muscular rigidity was of a boardlike nature on the right, and one got the indistinct feeling of a mass in the lower right quadrant. In view of the previous operation and the present findings the diagnosis was an intra-abdominal abscess, of appendical origin, with a low grade intestinal obstruction.

Operation.—Entrance to the abdomen was through the old operative incision, taking out the scar. The omentum was adherent to the intestine and pelvic contents. A large abscess was found on the right at the level of the pelvic brim. I went through the adherent omentum into the abscess, because removal of the adhesions seemed unwise in the condition of the patient. The abscess contained something like a quart of intensely fetid pus, the odor of which was frightful, and two live lumbricoid worms. The abscess wall had a look that was very suspicious of tuberculosis. No search was made for the appendix, and only a very limited one to see if there was any opening between the intestine and the abscess cavity. None was found, and the cavity was drained by a large cigaret drain, the abdominal incision being left with a rather generous opening. It was felt that one had better take chances with an incisional hernia than with any failure to drain such a fetid mass.

Postoperative Course.—The condition of the patient for the first seventy-two hours following the operation was critical.

She was given a continuous rectal drip of sugar solution with one intravenous injection of physiologic sodium chlorid solution. Careful examination of the stools for several days disclosed no more worms. The patient was discharged from the hospital May 24 with a solid wound and in good physical condition. She has remained well up to date.

PREPARATION OF MEDIUMS: A NEW HYDROGEN-ION CONCENTRATION METHOD*

LYMAN J. STRONG, M.D. (BUFFALO)
First Lieutenant, M. C., U. S. Army
NEW YORK

That bacteria may grow, the environment must be of about the same acidity or alkalinity; for bacteria to be pathogenic, this environment must be near the alkalinity of the human tissues. The adjustment of mediums to this alkalinity by methods now in common use is time consuming and often unsatisfactory. Carefully made standard solutions, with fine titration, often produce a product after sterilization that is found to have an entirely different reaction. If separate tubes or flasks are investigated, one is surprised to find the wide variation that exists in different containers of apparently the same medium. This is especially true of sugar mediums.

Much work has been done on indicators, but each has its fault as a general indicator: Litmus is not sensitive enough. Andrade's is suited only for aldehyd formers. Fuchsin does not have a suitable end-point. Brilliant green is inhibitory. Phenolphthalein is not indicating in acid. Others are either antiseptic or their end-points are wrong.

About two years ago, while I was working with the hydrogen-ion concentration of human blood serum, it struck me that phenolsulphonephthalein might be used: it has a fairly long end-point, which is of the same alkalinity as the human tissues; it is injected into the blood stream in kidney functional work with no damage to the human tissues. A year ago we began using it at the Buffalo General Hospital, and the results were so good that all other methods have been discarded. Two stock mediums are all that we use now: one fluid broth, the other solid agar. The preparations are the same except that one contains agar.

PREPARATION OF MEDIUM

Broth is prepared from minced lean beef, 2⅕ pounds (1,000 gm.), and distilled water, 1,000 c.c., which are infused in the ice box for twenty-four hours, filtered through glass wool, heated to the boiling for two minutes, and again filtered through glass wool. Now are added peptone, 10 gm.; sodium chlorid, 5 gm.; enough water to make 1,000 c.c., and the white of one egg. The mixture is heated to a boil and filtered through glass wool until clear. A 1 c.c. ampule of phenolsulphonephthalein is added. About 5 c.c. are poured into each of two test tubes. To one test tube a drop of any acid solution is added; to the other, a drop of sodium hydroxid solution. Then, drop by drop, are added acid (hydrochloric acid solution) or alkali (sodium hydroxid solution) until the color of about 5 c.c. poured into a third test tube is between the color of the other two test tubes. The hydrogen-ion concentration of the entire batch of medium will now be about p_H 7.5 This is the same as that of average human blood serum. Should a precipitate form, it may be filtered again through glass wool; paper or cotton may be used for filtration, but these remove the vitamins, and unless serum or blood are to be added later, some bacteria will not grow well.

ADVANTAGES

The advantages of this method are:

1. No standard solution is used: any solution will do.
2. Any tube that changes reaction can be told at a glance and discarded before inoculating.
3. Growth always produces a change in color.
4. Growth of all organisms is much faster and luxuriant.
5. Much time is saved, and there is a more desirable product.

BONE SKID

W. C. F. WITTE, M.D., AND RAYMOND L. SCHULZ, M.D., MILWAUKEE

During the open reduction of two cases of fractures of the lower end of the tibia that were somewhat impacted and had remained unreduced for periods of two weeks, considerable difficulty was encountered. The fractures were both of the spiral type, with an irregularly serrated fracture line and overriding and rotation of fragments. There was so much muscle tension during the period of contraction that the bony fragments could not be separated to any extent. Angulation and bringing the fragments together in proper alinement were impossible on account of the proximity of the fractures to the lower end of the tibia. A curved periosteal elevator was used as a pry, but it slipped up into the medullary cavity of the bone as soon as it got beyond a certain angle. To obviate this, an instrument was made, having a short curved tip and a larger secondary curve in the opposite direction immediately following (Fig. 1). Longitudinal grooves were cut into the concave side of the second curve, to serve as a guide for the roughened edges of the bone to slide in. This instrument was used in another case and found to be a great aid in prying the fragments of a fracture apart so as to make reduction much easier. Further cases for testing the value of this instrument have not been available for some time. It was thought best, therefore, to report the idea with the hope that others might have an opportunity to try it.

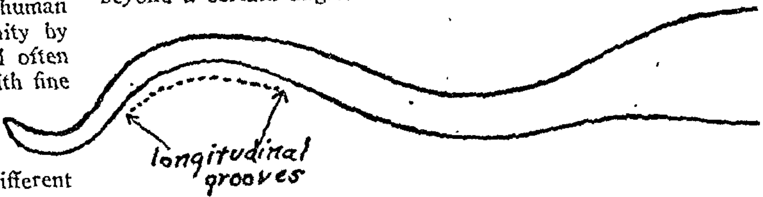

Fig. 1.—Curved portion of bone skid, same size.

The fracture is exposed in the ordinary way, and if the fragments cannot be reduced readily, the tip of the bone skid is inserted beneath the overriding fragment in such a way as to engage the edge of the fragment lying beneath it, as shown in Figure 2. The handle of the skid is then swung around so that the edge of the overriding fragment glides in the grooves of the second curved portion, which then acts as the fulcrum of a lever to pry the fragments apart. At the same time, the fragments are manipulated and guided by bone forceps so as to bring the fragments into proper alinement. When this is done, the skid is removed and the fragments are allowed to approximate, and are fastened together as desired. Since a tremendous leverage can be obtained, care must be used to avoid breaking out a segment of the cortex of the bone.

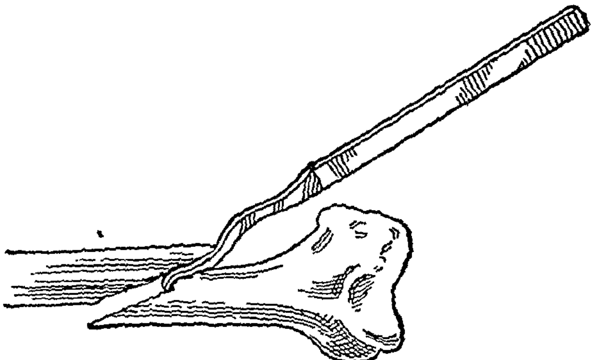

Fig. 2.—Use of bone skid for bringing the ends of a fractured bone into apposition.

Insomnia.—Sleeplessness is due to many causes. The most fertile cause is irritation of the brain by messages from the abdomen. I would venture so far as to say that flatulent dyspepsia is the cause of nine out of ten cases of insomnia.—G. King Martyn, M.D., *Medical Press and Circular.*

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* From the Rockefeller Institute.

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SATURDAY, FEBRUARY 8, 1919

ENCEPHALITIS LETHARGICA: A NEW DISEASE?

Last spring considerable alarm was awakened in Great Britain at the outbreak, notably in London and Sheffield, of cases of illness presenting a group of unusual cerebral or cerebrospinal symptoms. The distinctive features appeared to be those of an acute general disease associated with a condition of increasing languor, apathy and drowsiness, passing into lethargy; progressive muscular weakness passing into complete disablement, and a combination of various cranial nerve palsies, of which ptosis, squint and nystagmus were characteristic signs. The cases were provisionally diagnosed botulism, toxic ophthalmoplegia, epidemic stupor, epidemic lethargic encephalitis, acute polioencephalitis, polioencephalomyelitis, bulbar paralysis and Heine-Medin disease. There is some evidence that a comparable illness has appeared in France and in Austria.

At the outset there was a tendency to ascribe the obscure malady to food infected with *Bacillus botulinus*. The difficulties then prevailing in the war-time food situation helped to focus attention on possible outbreaks of botulism. Other hypotheses presently were based more directly on the nervous symptoms such as appear during an acute specific fever which may affect any part of the central nervous system and cause a variety of manifestations dependent on the portion affected. Accordingly, suspicion as to the appearance of acute poliomyelitis was prominently raised. Still other suggestions referring the etiology to some nonbacterial poison, such as benzin used in the manufacture of certain butter substitutes, or to vitamin deficiencies in the dietary, were pressed for recognition.

An investigation of wide scope was undertaken by the experts of the Local Government Board through their Medical Research Committee.[1] The recently published results practically negative the diagnosis of botulism, so far as association of the illness with infection from food is concerned. Dr. McIntosh of the London Hospital failed entirely to recover the bacillus of Van Ermengem from tissues and fluids in fatal cases and from articles of food that had been regarded with suspicion. He was also unable to obtain evidence that the serum from recovered patients agglutinated *Bacillus botulinus* or protected animals from its toxin. In fact, the histologic examination of the changes in the nervous system pointed to an acute infection rather than to an intoxication. Furthermore, the epidemiologic evidence was scarcely in harmony with a food-poisoning theory; thus, for example, two typical patients were breast-fed infants. Finally, botulism appears to be a nonfebrile disease according to the most recent studies of its manifestations.[2]

The British investigators have also made careful inquiry into the possible identification of the new disease with acute poliomyelitis. Professor Marinesco, the neurologist of the faculty of Medicine at Bucharest, assisted in ascertaining the pathologic features related to the nervous systems of the victims. His observations, in addition to those of McIntosh, show sufficient points of divergence from the classic picture of poliomyelitis to furnish presumptive evidence against the view that the English cases were merely encephalitic varieties of poliomyelitis. None of the postmortem material yielded the pleomorphic coccus described by Rosenow in acute poliomyelitis. Cultures from the blood were invariably sterile, and cultures from the cerebrospinal fluid, nasopharynx and feces failed to show the constant presence of any particular class or type of micro-organism. The central nervous system showed an inflammatory process resembling that observed in general paralysis, syphilis, sleeping sickness and acute poliomyelitis, and the diagnosis between the lesions and those of the last named disease is difficult from the histologic indications alone.

The strong clinical, epidemiologic and pathologic evidence that encephalitis lethargica is distinct from classic poliomyelitis is supported in a way by the animal experiments undertaken. Inoculations with emulsions of nervous material, under conditions in which poliomyelitis has been transmitted to monkeys, failed to produce a paralysis. Sir Arthur Newsholme, the medical officer of the Local Government Board, frankly admits that all these negative findings are far from satisfactory. The speedy cessation of the outbreak has put an end to further investigation at present. In suggesting that the disease is a malady *sui generis*, anatomically and clinically distinct from analogous affections, we need not forestall further study whenever a suitable opportunity is presented by the identification of suspicious cases. As the first necessity for such a course is early and complete information of all cases of the disease in different places, it has been decided as a temporary measure to make encephalitis lethargica compulsorily notifiable for a period of one year throughout England and Wales.

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[1] The Report of an Enquiry into an Obscure Disease, Encephalitis Lethargica, Reports to the Local Government Board on Public Health and Medical Subjects, New Series No. 121, London, 1918, p. 74.

[2] Dickson, E. D.: Botulism, a Clinical and Experimental Study, Monographs of the Rockefeller Institute for Medical Research, No. 8, July 31, 1918.

From a practical standpoint it has been suggested that the outbreak which has been described may be associated with a breakdown of immunity. Lowered resistance to a usually harmless saprophyte or a "conditional" parasite may be conceived to permit harm from organisms ordinarily harbored with impunity. The practical indication in the absence of further knowledge follows familiar hygienic dicta. We must, says Newsholme, enlist all the resources of personal and public hygiene in an endeavor to influence favorably the potential energies of the body and tissue cell resistance. At the same time, he adds, it is clearly of importance to pursue research not only to ascertain what pathogenic agent is concerned, but also into the factors of individual predisposition and correlated resistance, the variations of which are subject to so many influences.[3]

THE RESULTS OF AERIAL SHOCK AND THE CLASSIFICATION OF THE INJURED

As an outcome of the war, light has been thrown on many obscure neurologic problems. In this domain the effect of shell explosions on the organism has offered a particularly fertile field for observation and research. Now that the war is over, it appears that in no field will the ultimate results on the individual be so difficult to evaluate as in this. And, accurate evaluation is important not only in the interest of the state, but in some cases at least in its bearing on the recovery of the patient. Bonnet[4] has prepared a description and in some measure an explanation of injuries resulting from aerial shock and not directly due to missiles or from poisoning from the gases generated. In his conclusions he briefly directs attention to the classification and pensioning of soldiers injured by shell explosions as recommended to the French authorities by French neurologists.

After considering the results of the experiments of physicists on the effects of explosions, and focusing attention on the extent and power of the aerial disturbance from the various explosives used in warfare, Bonnet passes to observations made at the front by himself and his confrères, under what must have been great difficulties. He agrees with other competent observers that it is the shock of the advancing air wave generated by the explosion that causes the damage, and that the extent and severity of this depends on the locality of the burst—*open* spaces, trench or dugout. None of these points are new, but they cannot be too often repeated, as they are fundamental to the explanation of the results of explosions.

Observations were made on the arterial pressure of soldiers during shell fire. It was found that the bursting of shells invariably increases arterial pressure in those in its vicinity; but if no pathologic lesion results, the pressure returns to normal, after a period, depending on the amount of shell fire and the condition under which the burst occurs. This increase could be demonstrated in old soldiers, even though they showed not the least emotion at the burst of the shell and were protected from danger. Bonnet concludes that the shell burst affects all people in the vicinity, and that these variations in arterial pressure are not emotional but a reflex sensory disturbance from the atmospheric pressure, the earth vibrations and the noise. He admits that in many these reflex sensory disturbances are influenced and increased by psychic and emotional influences, such as insomnia, fatigue and the association of ideas. While the influence on the organism of the increase of pressure from one or two shells may be negligible, this increase coming from thousands of shells has to be reckoned with in those with latent tendencies to certain diseases, such as syphilitics and those with an unstable sympathetic system. It is to this, together with fatigue, that he attributes the increase in warfare of such diseases as general paralysis and exophthalmic goiter.

The explanation of nervous and pulmonary lesions following shell explosions offered by Bonnet is that the aerial wave compression acts primarily on the superficial capillaries and blood vessels as well as those of the abdominal cavity: in short, on those not protected by nature from pressure. There is thus formed a blood column, which is driven like a battering ram into incompressible cavities like the thorax and the cerebrospinal cavity. As a result, the smaller vessels in these cavities, many of them terminal, may rupture or thrombose, causing partial anemia of surrounding tissues with a varying amount of injury. The eye and the ear are especially liable to suffer, the former by its position exposed to pressure and the latter by its physiologic adaptability to receiving pressure. It is undoubtedly true that the internal ear may be damaged without rupture of the drum, if this structure is sufficiently elastic. Gas emboli play little part, because the compression wave is of too short duration.

The question is often asked: Why do concussion effects occur so little among artillerymen? Bonnet would answer this by saying that in gun fire the explosion is dynamically feebler and is purposely directed to be of relatively long duration in order to give movement to an object, while the explosion of the shell results in the sudden development of enormous energy transmitted onward as atmospheric waves.

The early separation of shock patients from hysterical patients is advisable. As early as possible, patients with organic or mental shock should be sent for treatment to the rear, the hysterical patients returned to the front. Those with doubtful or troublesome cases, he believes should be sent to a special neurologic center, for the sooner psychotherapy is practiced by a specialist the better for the patient. He assigns an important rôle to the sympathetic system in shock, and advises not only that the patient be kept quiet but also that suprarenal and thyroid treatment be used judiciously.

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[3] The term "encephalitis lethargica" seems to have been applied first by von Economo, who described the symptoms as they occurred in Austria (Wien. klin. Wchnschr. 30:581, 1917.

[4] Bonnet, Maurice: Contribution à l'étude des effets des explosions de guerre sur l'organisme, Nancy, A. Crépin-Leblond, 1918.

Quite important is the suggestion in regard to compensation for injury or disease caused by warfare. The French soldier incapacitated for service is usually classed as réformé No. 1 or réformé No. 2. In the réformé No. 1 class are soldiers who are discharged permanently as being incapacitated for further military service. In the réformé No. 2 class are soldiers who are discharged temporarily because of some incapacity which, however, is remediable. In war time these soldiers are reexamined every three months, and then may be returned to service or again temporarily discharged for three months. The man in the réformé No. 1 class may receive a pension if his condition in life shows that he requires it, but he always receives a lump sum as an indemnity based on the amount of disablement and calculated in percentages of total disablement from 10 to 100 per cent. On the recommendation of Babinsky, the Society of Neurology and Psychiatry adopted the following conclusions:

1. Hysterical patients should be granted neither discharge nor indemnities. If the hysteria is associated with organic disorders, no cognizance of the hysterical manifestations should be taken in valuing the degree of incapacity.
2. In cases of reflex nervous manifestations following war traumatism that prove refractory to treatment, the patient should be transferred to an auxiliary service or be discharged temporarily with an indemnity valued at from 20 to 50 per cent. of total disablement.
3. For marked neurasthenic states without organic disorders or mental trouble, no indemnities should be granted and only exceptionally discharge, more often auxiliary service.

In regard to mental conditions, the same society adopted the following recommendations:

> In acute states, even emotional (*même purement émotionelles*) following shock, the soldier should be discharged with a rate of incapacity between 10 and 100 per cent. without regard to predisposition. For dementia or definite psychic enfeeblement following traumatism, the soldier should be discharged as réformé No. 1 with a rate of incapacity of from 50 to 100 per cent. For chronic psychosis following shock, the soldier should be classed as réformé No. 1 with an incapacity rate of from 20 to 80 per cent. In mania or melancholia first appearing after traumatism, there should be given a temporary discharge with an incapacity rate of from 10 to 40 per cent.

At a meeting of the chiefs of centers of the French medical service with the undersecretary of state for health, it was decided that general paralytics should be discharged in Class 2 (réformé No. 2) except in particular cases in which it was proved that it had been aggravated by military service. In these a rate of from 60 to 80 per cent. of incapacity should be given. Epileptics should be placed in Class 2 except when traumatism or infection antedated the appearance of the first grave epileptic seizure. These should be grouped in Class 1 (réformé No. 1) with an incapacity rate of from 10 to 80 per cent.

To these groups Bonnet would add cases of exophthalmic goiter. He rightly insists that pulmonary lesions and lesions of the organs of sense due to shell explosion ought to be classified and rated as war wounds. He recommends that from time to time those discharged should be reexamined because a number invalided are capable of improvement.

Such detailed study as is being given in all the Allied nations to the problems of the wounded and otherwise incapacitated soldier must inevitably yield much that is of value to the future of medical science. It is, moreover, an adequate guarantee that the victorious nations realize the extent of their obligation to the fighting man and will do their utmost to meet that obligation.

LITERATURE AS AN AID TO RESTORATION

The war, which has in greater or lesser degree affected all the civilized nations of the earth, has given rise to novelties of performance and innovations of thought entirely unanticipated. Aside from the institution of new devices and operations that have demanded unusual ingenuity on the part of both the offensive and the defensive elements concerned, the very magnitude of many of the projects has tended to make ancient provisions in relation to them inadequate if not actually useless. The proportions of the war have been so vast, the numbers involved so huge, that new types of ability have been called for to manage the enormous machinery and its indescribable complexity. Tremendous efforts have become necessary to alter the inertia of traditional procedures.

A striking illustration of this, as it pertains to men rather than materials, is afforded by the problem of the care, reeducation and return to civil life of disabled soldiers and sailors. Medical attention has, it is true, been bestowed liberally on the unfortunate victims of previous wars. Today, however, there is a well founded realization that something more than first-class hospital treatment and loudly voiced gratitude is due to those who have become disabled in their response to the call of duty. The thought of the disabled, wrote Lord Charnwood, cannot fail to awaken first of all a deep feeling of compassion, and, in a sense, of course, it claims all our compassion. But something is wrong, he adds, with the man in whom that sentiment can remain merely or even mainly sorrowful. All visitors to military hospitals have the same experience. They go there expecting to see something profoundly sad; they do, in fact, see sights more horrible than they had previously imagined; but, Lord Charnwood concludes, the devotion and resourcefulness of the healer, the courage and the constant unselfishness of the sufferer, surpass their expectation no less; and they come out full of a strange, deep exhilaration, an enduring remembrance in which the solemnity of death is quite swallowed up by the joy of life.

As never before, it has become necessary in every country involved in actual fighting, to carry the indispensable encouragement beyond the period of hospital residence and to institute on an elaborate scale schemes of practical helpfulness. Men must be encouraged materially and, above all, spiritually, to "carry on." Pity of the stagnant sort must be replaced by positive organization "for training the disabled man, for opening to him a satisfactory place in life, and incidentally for carrying his cure farther."

We have already called attention to some of the agencies that have been created in this country to do what no pension system can accomplish.[1] A product—perhaps it should be designated a tool—of the restorative scheme is seen in a diversity of literary efforts intended to further the plan. As early as July, 1917, a journal entitled *Recalled to Life* was established by Lord Charnwood. Under the new name of *Reveille*, the quarterly has become a review of all that is being done abroad for the disabled sailor and soldier. Under the editorship of John Galsworthy, two numbers published since last August have exhibited a truly unique contribution to the story of what restoration means "to those who are being restored, to those restoring them, but even more—to the nation at large." Renowned names in literature and art have created a unique magazine which aims to steer its readers between the roads of "facile optimism" and "easy-going pessimism." *Reveille* breathes forth a new spirit of encouragement, and illustrates in a splendid way how psychologic and material forces can make life useful even under depressing conditions. The medical fraternity will do well to study these novel literary devices as hitherto unappreciated aids in the art of restoration.

INTESTINAL PROTOZOA IN THE TROPICS

Of the numerous and varied forms of life that are known to enter and at times inhabit the alimentary tract of man, comparatively few, aside from bacteria, have established a reputation for pathogenicity. Larger organisms like the intestinal worms have, of course, long been regarded as highly detrimental. Their noxiousness has been ascribed primarily to the harm these parasites might do mechanically or locally; and not until more recently has the possibility of the production of soluble poisons by the invading organism been reckoned with. The occurrence of eosinophilia in the leukocytes of the blood is itself a significant indication of response to chemical products rather than to the mere mechanical irritation of the parasite.

Among the smaller forms, the trypanosomes and coccidia are justly the objects of grave suspicion whenever they exhibit their presence in the body. Some of the intestinal amebas, like the *Ameba coli*, have also given indications that they may produce toxic products. Various intestinal flagellated and ciliated protozoa, however, appear to exist in the intestinal tract for long periods without causing any trouble to the host. They seem not to become obligatory parasites in the objectionable way of other forms mentioned. Consequently they have received little consideration from a pathogenic standpoint.

The medical zoologist[1] of the University of the Philippines recently stated that the time has arrived when workers in the field of parasitology should fairly face the situation presented by the intestinal flagellates. They have been under suspicion for many years, during which time there has been gradually accumulating a mass of evidence against them. No progress will be made if we are to continue to employ, as our criteria of pathogenicity or nonpathogenicity, the presence or absence of blood and pus in the stools.

It is conceivable that lack of resistance or some other change on the part of a host may confer new powers on a presumably harmless parasite. There can be little doubt that altered environments profoundly influence the pathogenicity of bacteria. Why should a similar possibility not arise in the case of other microbiotic forms? Pending the extension of knowledge about them we may be prepared to expect actual invasion and destruction of tissues even by supposedly nonpathogenic forms. Haughwout adds to this possibility the warning that such organisms may actually interfere with absorption because of the adherence of large numbers of parasites to the surface of the epithelium. Serious mechanical irritation of mucous surfaces even by these lowly invaders is likewise not excluded. The production of substances of a high or low degree of toxicity, even if they are merely the products of parasite metabolism, needs to be reckoned with more than it has been in the past. The experience of trained parasitologists in the tropics where alimentary protozoan invasions of the body are more common seems to point to the importance of more intensive study of the possibilities in this field. Such apparently unexplainable conditions as "philippinitis"—the "tired feeling" ascribed without strict justification to heat, sunlight or other climatic factors—may find a solution in the frequent presence of supposedly harmless protozoa. At any rate, in the absence of more detailed knowledge at present there is some propriety in the warning of Haughwout that "the flagellated intestinal protozoa should be viewed with suspicion and regarded as pathogenic until the contrary is proved beyond dispute."

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[1] Carry On, a magazine on the reconstruction of disabled soldiers and sailors, edited by the Office of the Surgeon-General, U. S. Army. Vocational Rehabilitation of the Disabled Soldier, Current Comment, J. A. M. A. **70:** 1767 (June 8) 1918.

[1] Haughwout, F. G.: The Tissue-Invasive Powers of the Flagellated and Ciliated Protozoa, with Especial Reference to Trichomonas Intestinalis, A Critical Review, Philippine J. Sc. (B) **13:** 217, 1918.

Current Comment

THE BLOOD PLATELETS

The "third class of formed elements" of the blood, now generally spoken of as blood platelets, has been the subject of much speculation and almost irreconcilable clashes of opinion. The French hematologist Hayem at one time regarded these structures as stages in the formation of red blood corpuscles. There can be no doubt, to quote the language of one physiologist, that the stuff known as blood platelets stands in some very important relation to the clotting of the blood. The greatest uncertainty relating to this may be expressed by the question as to whether they are morphologic structures essential in initiating the process of coagulation or whether, on the contrary, they are a product of this change. Indeed, they have been described as liquid crystals rather than structural cells. The microscopists know that the platelets have a specific affinity for basic dyes and that even after their first appearance they are very unstable, tending to undergo further alteration unless they are permanently fixed by some suitable procedure. It has even been said that the various fixing fluids that have been recommended for demonstrating the blood platelets actually produce rather than merely preserve them. Such is the uncertainty. If a determination of the origin and significance of the platelets is to be appealed to in unraveling the complexity of the problem of blood clotting, it is certainly not without significance that these illusory structures are not found in other than mammalian bloods, despite the fact that the circulating fluid of fishes, birds and reptiles clots. Nor have the platelets been discovered in the serous fluids of mammals. Attention is naturally called in this connection to the coagulable lymph. The reports of several investigators on the occurrence of platelets in lymph reveals a disagreement among the histologists of this fluid.[1] The latest opinion based on experimental evidence, from Jordan[2] of the University of Virginia Department of Anatomy, completely substantiates Howell's assertion that the lymph from the thoracic duct lacks platelets completely. If, then, it is asked how lymph can contain clot-facilitating substances generally believed to be liberated by platelets, the explanation may be found, according to Jordan, in the instability of these elements. In their passage (relatively slow as compared with the blood circulation) through the lymphatics to the thoracic duct, he suggests, the relatively small number that may have entered the system may have entirely disintegrated, meanwhile contributing the relatively small amount of prothrombin and thromboplastin characteristic of lymph; to which the lymphocytes under favorable conditions may contribute a certain additional amount, as suggested by Howell. Considering the origin of the bulk of the lymph from the plasma by way of the tissue spaces, and the continual disintegration of blood platelets, Jordan adds, the presence of these elements (thrombin and thromboplastin) in lymph can be accounted for, at least in part, on the basis of this relationship between blood plasma and lymph.

THE GALLBLADDER AND THE SECRETORY PRESSURE OF THE LIVER

So far as the bile may be an excretory product, furnishing a device for ridding the organism of disintegration fragments of the blood pigments, its discharge should be more or less continuous; as a fluid facilitating digestive or absorption phenomena, its presence is needed only at certain active stages in the alimentary cycles. The exigencies of the body, says a recent writer,[1] therefore require a continuous excretion of bile by the liver, but a discontinuous entry of this fluid into the small intestine. The discontinuity of the entry of a continuous secretion into the intestine is secured, in the majority of animals, by the existence of a gallbladder, a diverticulum from the bile ducts, in which bile secreted during the intervals between periods of digestive activity is stored up. Not all species, however, have a gallbladder. Its place is taken to some extent by rather large ducts, as in the case of the horse. Judd and Mann[2] have ascertained that all of the extrahepatic ducts dilate after the removal of the gallbladder. This result seems to be due to interaction of the pressure exerted by the liver and sphincter at the duodenal end of the common bile duct. A logical inquiry, therefore, concerns the question of the natural secretory pressure in such species as have no gallbladder. Is it altered in any way that might suggest some compensatory activity to replace the functions of the missing bladder? The pressure at which the bile is secreted has a variety of bearings on the phenomena that may be staged with reference to this secretion and the channels in which it is confined. According to the latest researches of Mann and Foster[3] at the Mayo Clinic, the presence or absence of a gallbladder bears no relation whatever to the secretory pressure of the liver, although the pressure varies considerably in the various species of animals both with and without gallbladders.

THE RETURNED TUBERCULOUS SOLDIER

The returning tuberculous soldier is not likely to prove a serious problem in this country, although it is one to which a certain amount of consideration must be given. There is no difficulty with the bed patient; at least he does not spread infection. The problem is the man who is suffering from the disease in the incipient form. He can usually be cured or the disease checked, but the treatment is slow and tedious. Sanatorium treatment has many advantages, but sanatorium life becomes irksome and monotonous. Much thought has been given to this subject in Europe. It may be instructive, therefore, to learn of some projects devised to relieve this situation on the other side of the Atlantic. Dr. P. C. Varrier Jones[1] believes that occupation is indicated for all consumptives who are able to work, such work, of course, being regulated in proportion to the condition of their health. He directs attention to the fact that the problem is not purely medical, but that psychology, sociology and medicine are mingled as in no other medical problem. The human element must be the touchstone. The gist of his argument is that, as no man can be expected to submit to the monotony of institutional life for an indefinite period, the remedy is to graft the colony principle on existing sanatoriums. Patients may be employed at their own or allied trades or at suitable occupations that have been taught them. In effect, the suggestion is made that village communities for the especial use of tuberculous soldiers should be established, and that these should be well provided with the amenities of life. One such community has been in existence in England for some time and has thoroughly justified its establishment. It is kinder to the returned tuberculous soldier and better for the community that whenever possible he should be given every facility to earn his living and taught a trade if necessary. The village community system appears to present several advantages for this purpose.

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[1] The contrasting views are expressed by: Schäfer, E. A.: Textbook of Microscopic Anatomy, London, 1912. Howell, W. H.: The Coagulation of Lymph, Am. J. Physiol. **35**: 483, 1914.

[2] Jordan, H. E.: The Histology of Lymph, with Special Reference to Platelets, Anat. Rec. **15**: 37, 1918.

[1] Starling, E. H.: Human Physiology, 1915, p. 714.

[2] Judd and Mann: Surg., Gynec. and Obst. **24**: 437, 1917.

[3] Mann, F. C., and Foster, J. P.: The Secretory Pressure of the Liver with Special Reference to the Presence or Absence of a Gallbladder, Am. J. Physiol. **47**: 278, 1918.

SULPHATES AND NUTRITION

Most foods consumed by man contain mineral or inorganic constituents. Indeed, they are present in all food in the natural state, but sometimes are removed during the processes of refinement such as sugar and the oils undergo. It is taught that inorganic compounds are indispensable in the diet. No less than nine elements—calcium, sodium, potassium, iron, magnesium, sulphur, iodin, phosphorus and chlorin—are included under this caption; yet ordinarily little distinction is made between them with respect to their usefulness to the organism. The commonly used foods vary widely in their content of these elements; thus the cereals furnish little calcium, whereas milk is rich in it. The distribution of chlorin and sodium is likewise decidedly varied. Osborne and Mendel,[2] in a study of the inorganic elements in nutrition, have called attention to the uncertainty of our knowledge as to the indispensability or the minimal requirement of any of the inorganic constituents of the dietary, with the possible exception of calcium and phosphorus. They have pointed out the apparently extraordinary capacity of the body to adjust itself to a varying supply of common salt, and they suggest that what is true of sodium chlorid may apply to other elements in equal degree. Certain it is, at least, that the inorganic elements as they happen to occur in the natural foods do not necessarily represent the optimal or even the minimal needs of the individual. A new illustration has been furnished by Daniels and Rich[3] of the Department of Home Economics at the University of Wisconsin. They have found that despite the occurrence of inorganic forms of sulphur in natural foods so that probably no normal diet is ever free from them, the sulphates are not used to build the organic sulphur complexes of the body. Animals cannot use inorganic sulphates to replace the sulphur-containing amino-acid cystin derived from the proteins. It therefore follows as a corollary that the proteins furnish more than nitrogenous groups to the organism. They must be depended on for the indispensable sulphur-yielding groups also.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending January 31, the Medical Corps contained 23,424 officers, a decrease from the previous week of 924. The Medical Reserve Corps contained 626 officers. The total number of medical officers discharged since the beginning of the war is 9,966.

Convalescent Center to Be Established

A convalescent center is to be established in Chickamauga Park under the immediate command of Brig.-Gen. William S. Scott. It is believed that the hospital will be large, consolidated with several of the hospitals that are now being maintained. The decision to establish this center was made known, January 20, after a tour of inspection by Major McLain of the Surgeon-General's Office in charge of the convalescent hospitals in the southeastern department.

New Hospital Construction

Additional hospital construction will be undertaken by the Construction Division of the Army as follows:

Walter Reed General Hospital, Washington, D. C., alterations and additions to the receiving wards and construction of a building for automobile repairs and for mechanics necessary for physical reconstruction exercises.

At Debarkation Hospital, No. 51, Hampton Roads, Va., nurses' quarters, barracks for enlisted men as well as mess barracks for them, diet kitchen, alterations to existing barracks and sheds, a new wharf and a hospital train track and shed. The estimated cost at this point is $195,000.

Eight new ward buildings at Letterman General Hospital, San Francisco, which will increase the capacity of that institution from 1,400 to 1,800, at a cost of about $75,000. The addition to the power plant will cost about $6,000. Two structures for the educational department to be used in training wounded soldiers, and a kitchen capable of preparing meals for 2,400 patients.

Administrative and Construction Work in Hospitals

The War Department authorizes the following statement from the Office of the Surgeon-General:

Officers and enlisted men are needed by the division of physical reconstruction for administrative and instruction work in hospitals. Men who have had technical trade, commercial or agricultural training and experience are especially desired as instructors in the curative workshops.

Authority has been granted by the War Department to transfer to the reconstruction division any commissioned officer, noncommissioned officer, or enlisted man from any branch of the service who is no longer needed in his present assignment and who desires the transfer.

These men will be sent to hospitals functioning in physical reconstruction. The program is now in operation in 25 hospitals with an enrolment of 10,000 disabled soldiers in bedside and ward handicrafts and studies, technical and trade work in shops, agricultural work in hospital farms and gardens, stenography, stenotype, typewriting and other commercial work, and in general academic work. More than 100 commissioned officers are in charge of the administrative service and in supervisory positions, and nearly 500 enlisted men are in service as instructors.

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[1] Reveille No. 2, November, 1918, pp. 240-250.

[2] Osborne, T. B., and Mendel, L. B.: The Inorganic Elements in Nutrition, J. Biol. Chem. **34**: 131, 1918. Inorganic Elements in Nutrition, editorial, J. A. M. A. **71**: 660 (Aug. 24) 1918.

[3] Daniels, Amy L., and Rich, Jean K.: The Rôle of Inorganic Sulphates in Nutrition, J. Biol. Chem. **36**: 27, 1918.

The reconstruction work will last until the hospitals are cleared, probably by the summer of 1919.

Formation of Commission Sanitaire Des Pays Alliés

A health commission of the Allies has been formed containing representatives of most of the large nations allied against Germany. A subcommission was recently appointed by Professor Santoliquido, delegate from Italy, and president of the commission. The subcommission will meet in Paris on the first or fifteenth of each month to consider the most important sanitary problems regarding demobilization, the occupation of territory formerly invaded, the military occupation of enemy territory as related not only to the health of the troops, but also to the civilians concerned. The personnel of the subcommission is: president, M. le Professeur Santoliquido, Conseiller d'Etat, Délégué de l'Italie dans le Comité de l'Office International d'Hygiène publique; M. le Médecin Principal de premiere Class Maistriau, Commandant du Groupement Régional du Service de Santé à Rouen; M. le Médecin Général Jan; M. le Col. Richard P. Strong, Director Department of Medical Research and Intelligence, A. R. C., M. le Col. W. W. O. Beveridge, C.B., D.S.O., Assistant Director of Medical Services for Sanitation, Professor of Hygiene Royal Army Medical College; M. le Médecin Major Levi; M. Coussol; M. de Lieut.-Col. Médecin Professeur A. Castellani; M. de Cazotte, Ministre Plénipotentaire, Directeur de l'Office International d'Hygiène publique; M. le Docteur Pottevin, Directeur Adjoint.

Orthopedic Clinic Fort Snelling

At the request of the Minnesota Academy of Medicine a clinical evening was arranged for the medical profession of Ramsey and Hennepin counties by the orthopedic staff of U. S. General Hospital No. 29, Fort Snelling, Minnesota. This clinic was held Thursday evening, Jan. 23, 1919, at the Post gymnasium. About 400 of the profession of the twin cities attended. Col. W. J. Mayo and Colonel Sullivan of the Surgeon-General's office were also present. A carefully worked out program was presented with the intention of giving a general outline of the various phases of the orthopedic service at the hospital. Cases were shown accompanied with brief histories and exhibited the various war wounds and the degrees of function accomplished by means of surgical and physiotherapeutical measures adopted. The wealth of interesting cases collected from about 2,000 overseas men furnished a limitless variety for exhibition and inspection. The program included: 1. Presentation of Unusual Overseas Casualties. 2. Presentation of Overseas Orthopedic Joint Results. 3. Presentation of Local Physiotherapy Results. 4. Exhibition of Splints, Provisional Limbs and Limbless Patients. 5. Presentation of Occupational and Shop Activities. 6. Lantern Demonstration of War Wounds and Results of Orthopedic Surgical Treatment. The orthopedic staff is made up of the following officers: Major E. A. Rich, chief of service; Capt. E. A. Klein, asst. chief, in charge of workshops, artificial limbs; Capt. C. F. Clayton, asst. chief, in charge of all orthopedic physiotherapy; Lieut. E. S. Porter, asst. chief, responsible for service paper work and therapeutics of recreation.

Distinguished Service Medal Awards

The Distinguished Service Medal has been awarded to the following officers:

Major-General MERRITTE W. IRELAND, Surgeon-General, U. S. Army, for extraordinary meritorious and distinguished services. "As chief surgeon of the American Expeditionary Forces he supervised and perfected the organization of the Medical Department in France, and to his excellent judgment, untiring efforts, and professional achievements are largely due the splendid efficiency with which the sick and wounded of the American Army have been cared for."

Major-General WILLIAM C. GORGAS, M. C., U. S. Army, retired, for especially meritorious and conspicuous service as Surgeon-General of the Army in organizing and administering the Medical Department during the war.

Brigadier-General Walter D. McCAW, M. C., U. S. Army, whose "counsel and advices in the earlier stages of the operations of the American Expeditionary Forces were a particular benefit to the effective work of the medical department. As chief surgeon of the American Expeditionary Forces in the later operations in the field he maintained a splendid efficiency of that department at a critical time, solving each new problem presented with wisdom and marked ability."

Brigadier-General ALFRED E. BRADLEY, who "As chief surgeon of the American Expeditionary Forces gave his utmost energy and undivided devotion to the duty of organizing the work of the medical department in France, during a period fraught with untold difficulties. To his foresight was largely due the successful operation of that department when it was called upon to meet the demands that were subsequently made upon it."

Major HORATIO N. JACKSON, M. C., U. S. Army, Burlington, Vt., on duty with the 313th infantry, for acts of Distinguished Heroism, near Montfaucon, France, on Sept. 26 to 29, 1918. "Constantly working in the face of heavy machine-gun and shell fire, he was most devoted in his attention to the wounded, always present in the line of advance, directing the administering of first aid, and guiding the work of litter bearers. He remained on duty until severely wounded by high-explosive shells, when he was obliged to evacuate."

Captain JAMES M. McKIBBIN, M. C., U. S. Army, Hagerstown, Md., deceased. On duty with 306th machine gun battalion, for distinguished heroism near Chevieres, France, Oct. 4, 1918. "During a very heavy artillery barrage, which lasted approximately two hours, he displayed a great coolness and courage in dressing and administering first aid to the wounded. Informed that a sergeant had been wounded and was lying between our lines and the enemy's line, he went to administer first aid to him. While in the performance of these duties, under intense fire, Captain McKibbin was wounded by machine-gun fire and later died from the effects of the wound."

Captain MAURICE C. PINCOFFS, M. C., U. S. Army, Baltimore, on duty with Ambulance Company 1, Second Division, for acts of distinguished heroism near Blanc Mont, France, Oct. 9, 1918. "After a withdrawal of the line had been made, he voluntarily crossed an open field under heavy fire to a small wood, where he located a number of wounded men, whose injuries he dressed and directed their evacuation without further casualties."

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L., signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Achola—Hall, G. W. (L.)
Anniston—Cryer, G. A. (L.)
Ashville—Williams, D. C. (L.)
Athens—Anderson, W. H. (L.)
Atmore—Webb, A P. (C.)
Bessemer—Powell, H. B. (L.)
    Waldrop, W. (C.)
Birmingham—Callen, R. (L.)
    Green, E. P. (L.)
    McQuiddy, R. C. (L.)
    Walker, E. H. (L.)
    Weed, W. A. (L.)
Black—Bridges, B. T. (L.)
Brewton—Smith, R. A. (C.)
Cedar Bluff—McElrath, W. S. (L.)
Cordova—Waldrop, A. M. (L.)
Courtland—Ussery, J. A. (L.)
Elkmont—Mayhall, C. V. (L.)
Elmore—Harmon, J. S. (L.)
Empire—Sowell, W. S. (C.)
Fleta—Duncan, T. (L.)
Flomaton—Abernethy, F. L. (L.)
Foley—Armistead, S. D. (L.)
Fort Payne—Warren, W. E. (L.)
[illegible], L. B. (L.)
[illegible], M. C. (C.)
[illegible], S. (L.)
Hartsells—Booth, W. M. (C.)
Lismen—Moore, W. N. (L.)
Livingston—Scales, J. P. (L.)
Marion Junction—Chisholm, J. R. (L.)
Mobile—Campbell, D. O. (M.)
Montgomery—Hubbard, T. B. (C.)
Prattville—Smith, M. D. (C.)
Roanoke—Hooper, J. W. (C.)
Siluria—Bains, R. C. (L.)
Sylacauga—Boozer, W. H. (L.)
Talladega—Boyd, F. W. (C.)
Taylor—Bates, I. C. (L.)
Tuscaloosa—Kirk, A. A. (C.)
    Searcy, G. H. (M.)
Wadley—Denney, T. H. (L.)

ARIZONA

Buckeye—Leister, F. L. (L.)
Douglas—Randolph, W. M. (M.)
Kingman—Tilton, A. L. (C.)
Mayer—Poole, R. E. (L.)
Tucson—Butler, J. I. (C.)

ARKANSAS

Barfield—Mason, C. H. M. (L.)
Colt—Burch, N. B. (L.)
Fayetteville—Miller, O. (C.)
Foreman—Shirey, W. L. (C.)
Fort Smith—Jeffrey, T. E. (L.)
    Thompson, E. M. (L.)
Garfield—Hodges, G. (L.)
Haskell—Gwaltney, B. (L.)
Hot Springs—Bush, J. W. (L.)
    Lautman, M. F. (L.)
    Snider, W. L. (L.)
Lewisville—Smith, J. R. (L.)
Little Rock—Meriwether, C. P. (M.)
    Riegler, N. W. (L.)
    Snodgrass, W. A. (M.)
Mariana—Bogart, H. D. (L.)
McGehee—Brown, R. N. (L.)
Monticello—Pope, M. Y. (C.)
Osceola—Howton, O. (L.)
Rogers—Moore, W. A. (C.)
Russellville—Hays, J. F. (L.)
Success—Waddle, M. V. (L.)
Texarkana—Kosminsky, L. J. (C.)
    Norwood, F. A. (L.)

CALIFORNIA

Alameda—Nottage, H. P. (C.)
Albion—Wolfe, H. H. (C.)
Alturas—Coppedge, W. E. (C.)
Beaumont—Keith, I. W. (L.)
Berkeley—Gay, F. P. (M.)
    Legge, R. T. (C.)
Escondido—Dotson, E. E. (L.)
Fillmore—Osborn, H. B. (L.)
Fresno—Collins, C. D. (L.)
    Skoonberg—A. E. (L.)
    Willson, L. R. (C.)
Hanford—Motheral, R. (C.)
Hayward—Crum, H. C. (L.)
Huntington Park—*Hubbard*, C. D. (C.)
Live Oak—Higgins, I. W. (L.)
Los Angeles—Armstrong, M. M. (C.)
    Bashor, E. G. (L.)
    Bonthius, F. A. (C.)
    Davies, B. C. (C.)
    Derrick, J. S. (C.)
    Edwards, F. A. (L.)
    Holgate, C. E. (L.)
    Johnson, W. S. (C.)
    Jones, A. H. (C.)
    Jones, G. P. (L.)
    Lissner, H. H. (M.)
    Misch, H. B. (L.)
    Peter, A. L. (C.)
    Skeel, D. W. (C.)
    Stivers, C. G. (C.)
    Tully, F. E. (C.)
    Young, C. S. (L.)
McKittrick—Degnan, S. B. (L.)
Palo Alto—Thomas, J. B. (C.)
Pasadena—Gardner, G. A. (C.)
    Reed, J. R. (C.)
Riverside—McKenna, W. J. (L.)
    Roblee, W. W. (M.)
Sacramento—King, M. R. (L.)
San Diego—Jackson, J. A. (C.)
    Parks, J. A. (M.)
    Worthington, G. B. (C.)
San Francisco—Dozier, C. A. (C.)
    Hirschfield, M. H. (C.)
    Hunt, T. E. (L.)
    Marion, G. L. (C.)
    Moffitt, H. C. (M.)
    Moss, J. M. (M.)
    Stephenson, H. A. (L.)

San Jose—Beattie, J. I. (L.)
Blanchard, T. L. (L.)
Kapp, M. W. (C.)
Sebastopol—Bixby, W. E. (L.)
Sunnyvale—Barry, R. K. (L.)
Vallejo—Dempsey, R. B. (C.)
Venice—Palmer, B. (C.)

CANAL ZONE

Ancon—Joseph, M. (L.)
Kupfer, N. B. (L.)
Corozal—Murphy, D. J. (L.)
Wender, L. (L.)

COLORADO

Bayfield—Downing, R. L. (L.)
Brush—Eakins, C. F. (C.)
Colorado Springs—Magruder, A. C. (M.)
Denver—Amesse, J. W. (L. C.)
Anderson, G. M. (C.)
Dean, E. F. (M.)
Griffin, E. G. (C.)
Hood, J. R. (L.)
Jones, S. F. (M.)
McCarroll, J. (L.)
McNaught, F. H. (M.)
Triplett, T. A. (C.)
Wetherill, H. G. (C.)
Nederland—McCracken, J. R. (C.)
Rocky Ford—Blotz, B. F. (L.)
Sugar City—Waxham, C. H. (L.)
Trinidad—Espey, J. R. (C.)

CONNECTICUT

Bridgeport—Gold, J. D. (C.)
Danbury—Hefferman, J. M. (L.)
Danielson—Knowles, J. R. (L.)
East Haddam—Crook, J. B. (L.)
Hartford—Starr, R. S. (C.)
Van Strander, W. H. (C.)
Mansfield Center—Cramm, W. E. (L.)
Meriden—Skladzien, T. S. (L)
New Haven — McDermott, T. S. (C.)
McGuire, C. F. (L.)
Sullivan, J. B. (C.)
North Haven—Higgins, G. S. (C.)
Springdale—Stockton, F. E. (C.)
Thompsonville — Simonton, F. F. (C.)
Unionville—Morrissey, W. T. (L.)
Warehouse Point—Porter, G. E. (L.)
Waterbury—Audet, C. H. (L.)
Willimantic—Simonds, C. E. (C.)

DELAWARE

Wilmington — Marshall, W. V. (L.)

DISTRICT OF COLUMBIA

Washington—Best, T. H. E. (L.)
Cohen, R. (L.)
Cook, H. C. (C.)
Hornaday, F A. (C.)
Moskowitz, S. N. (C.)
Thomas, W. J. G. (L.)
Young, C. E. (L.)

FLORIDA

Carrabelle—Holloway, L. W. (L.)
Greenville—Smith, A. J. (L.)
[illegible] M. (M.)
[illegible])
Lake City—Bates, T. H. (L.)
Lakeland—Groover, W. R. (C.)
Miami—Gramling, W. S. (L.)
Palatka—Strong, S. B. (C.)
Perry—Weeks, J. L. (C.)
Raiford—Driskell, S. E. (L.)
Sarasota—Schultz, F. W. (L.)
Tampa—Lancaster, W. J. (C.)
Nelson, R. G. (L.)
Vinson, C. J. (C.)
Wauchula—Garner, J. E. (L.)

GEORGIA

Alamo—Yawn, B. W. (L.)
Albany—Pearson, R. J. (L.)
Americus—Allen, H. B. (C.)
Stukes, J. T. (C.)
Athens—Coleman, E. M. (C.)
Atlanta—Anderson, E. B. (L.)
Bivings, F. C. (L.)
Blandford, W. C. (L.)
Bradford, H. B. (L.)
Colvin, E. S. (L.)
Dowd, K. B. (L.)
Hind, C. J., Jr. (L.)
Klausman, M. (C.)
Redd, S. C. (L.)
Thomson, J. D. (C.)
Augusta—Baker, H. J. (L.)
Bainbridge—Lewis, P. M. (L.)
Blackshear—Rankin, D. T. (L.)
Blakely—Shepard, W. O. (L.)
Blue Ridge—Daves, F. E. (L.)
Blundale—Carter, J. B. (L.)
Buford—Hutchins, W. J. (L.)
Cedartown—Wood, C. V. (M.)
Claxton—Nevill, P. L. (L.)
Columbus—Jordan, W. P. (L.)
Youmans, J. R. (C.)
Cordele—Daniel, B. (L.)
Whelchel, A. J. (L.)
Decatur—Ussery, T. S. (L.)
Douglas—Touchton, G. L. (L.)
Eatonton—Clark, S. A. (C.)
Egypt—Waters, L. T. (L.)
Fairburn—Camp, R. T. (L.)
Merriam, C. S. (L.)
Gainesville—Jones, W. A. N. (L.)
Greenville—Thrash, J. A. (L.)
Griffin—Conn, W. (L.)
Hawkinsville—Bailey, C. B. (L.)
Honey Creek—Sigafoos, J. F. (L.)
Kingston—Ellis, C. L. (L.)
LaGrange—Park, E. R. (L.)
Lindale—Moore, C. (L.)
Macon—Bashinski, B. (L.)
Hall, T. H. (C.)
Marietta—Gober, W. M., Jr. (L.)
Metasville—Wansley, W. B. (L.)
Metter—Simmons, W. E. (L.)
Midville—Sutton, W. H. (L.)
Moultrie—Brannen, C. C. (L.)
Nashville—Selman, G. S. (L.)
Riverdale—Orr, W. L. (L.)
Royston—Brown, S. D. (C.)
Savannah—Barrow, C. (C.)
Blake, H. H. (L.)
Clay, T. S. (M.)
Johnson, G. H. (C.)
Williams, L. W. (L.)
Stockbridge—Pinson, C. H. (L.)
Surrency—Copeland, S. M. (L.)
Tallapoosa—Downey, C. W. (L.)
Tifton—Smith, W. T. (L.)
Tignall—White, E. P. (L.)
Toccoa—Davis, J. (C.)
Waycross—Oliver, J. A. (L.)
Walker, R. C. (C.)

IDAHO

Boise—Pittenger, F. A. (M.)
Hailey—Fox, E. W. (L.)
Kuna—Fink, M. S. (L.)
Moscow—Carithers, W. H. (C.)
Payette—McDonald, J. L. (L.)
Sandpoint—Stackhouse, C. P. (C.)
Soda Springs—Kackley, E. (L.)

ILLINOIS

Alton—Pfeiffenberger, M. (C.)
Ashkum—Struthers, H. R. (L.)
Aurora—McLallen, R. R. (L.)
Bloomington—Cavons, L. B. (C.)
Freeman, A. R. (L.)
Hawks, J. K. P. (C.)
Breese—Warren, H. B. (L.)
Brimfield—Moore, J. C. (L.)
Brookville—Brigham, C. R. (L.)
Buckley—Schott, D. (L.)
Buda—Koerper, H. W. J. (L.)
Burlington—Roach, D. C. (C.)
Champaign—Stanley, O. O. (C.)
Chicago—Almfelt, G. A. (C.)
Andrews, F. L. (L.)
Armstrong, J. L. (L.)
Atwood, R. J. (C.)
Bartholomew, E. K. (C.)
Baum, W. L. (M.)
Besley, F. A. (Col.)
Blaine, E. S. (C.)
Brown, F. I. (C.)
Cleveland, E. S. (L.)
Conway, S. J. (L.)
Cousins, J. A. (L.)
Crowley, W. S. (L.)
Damiani, S. (L.)
Davenport, J. D. (L.)
Davis, C. H. (M.)
Davis, J. F. (L.)
Eisenstaedt, J. (L.)
Epstein, W. G. (L.)
Everhart, A. G. (L.)
Firtik, A. J. (L.)
Flanagan, B. F. (C.)
Gray, G. J. (C.)
Haeffner, A .W. (L.)
Hale, R. P. (L.)
Halvorson, H. J. (L.)
Hansen, O. L. (C.)
Hoffman, H. R. (C.)
Holinger, O. (L.)
Howell, D. H. (L.)
Hunter, P. M. (L.)
Jacobson, L. J. (L.)
Kahlke, C. (M.)
Kahn, O. L. (L.)
Katz, H. (L.)
Koll, I. S. (C.)
Krugmeier, C. E. (L.)
Kruse, H. (L.)
Lavieri, J. R. (L.)
Lehner, A. E. (L.)
Lescher, H. G. (L.)
Lewin, H. (L.)
MacCracken, W. P. (C.)
Mandel, M. (L. C.)
Mann, S. (L.)
McKinney, I. (L.)
Chicago—McWhorter, G. L. (L.)
Mertz, A. A. (L.)
Meyer, K. A. (L.)
Meyers, J. K. (L.)
Mikkelsen, E. M. (C.)
Morris, A. L. (L.)
Mosley, E. W. (L.)
Neseth, O. S. (L.)
Niles, E. K. (L.)
Oliver, E. W. (L.)
Pisani, V. V. (L.)
Poulson, H. A. (L.)
Price, A. E. (C.)
Quirk, F. J. (L.)
Robinson, M. V. (L.)
Roblee, L. F. (L.)
Roche, R. A. (L.)
Rogers, B. S. (M.)
Rosenblum, P. S (L.)
Runyan, H. C. (L.)
Sandstedt, G. E. (L.)
Sceleth, C. E. (C.)
Schwartz, A. J. C. (L.)
Schwarzel, F. M. (L.)
Shannon, C. G. (L.)
Sinkler, S. (L.)
Slivka, J. (L.)
Sonneschein, J. B. (L.)
Struges, R. L. (L.)
Sullivan, T. J. (L.)
Tenerowicz, R. G. (L.)
Tomhagan, V. K. (L.)
Tyler, W. (L.)
Way, H. J. (C.)
Wiedder, J. G. (L.)
Wilkinson, B. (L.)
Williams, W. (L.)
Woitalewicz, J. P. (L.)
Yates, G. F. (L.)
Young, F. W. (L.)
Zaleski, J. P. (L.)
Cicero—Kotalik, F. J. (L.)
Vilna, B. L. (L.)
Danville—Condon, J. J. (L.)
Downs, E. B. (L.)
DuQuoin—Byrne, J. D. (L.)
East Moline—Donahoe, C. E. (L.)
East St. Louis—Lane, E. H. (L.)
Eldorado—Brann. H. W. (L.)
Enfield—Staley, C. B. (L.)
Evanston—Alexander, W. G. (M.)
Williams, T. J. (C.)
Findlay—Johnson, R. W. (L.)
Galesburg—Franing, E. C. G. (M)
[illegible] M. S. (L.)
[illegible] (L.)
[illegible] J. H. (L.)
Harrisburg—Thompson, H L. (C.)
Harvard—Seelye, N. L. (L.)
Huntley—Statler, O. I. (L.)
Ipava—Snively, C. D. (L.)
Joliet—O'Neill, J. T. (L.)
Jonesboro—Sanders, K. D. (L.)
Kankakee—Stanger, R. H. (L.)
Marion—Casey, C. L. (L.)
Felts, H. A. (L.)
Mascoutah—Scheve, E. F. (L.)
Mattoon—Nolan, J. F. (L.)
McHenry—Wells, D. G. (L.)
Milford—Gregory, J. H. (C.)
Millstadt—Diesel, G. J. (L.)
Minier—McLaughlin, S. M. (L.)
Monmouth—Kampen, H. L. (L.)
Montrose—Kempff, J. W. (L.)
Mooseheart—Husted, E. G. (L.)
Mount Carmel — McIntosh, J. J. (L.)
Mount Vernon—Hall, A. (C.)
Naperville—Rikli, A. R. (C.)
Normal—Galford, G. H. (L.)
Oak Forest—Funkhouser, T. W. (L.)
Oak Park—Ribbeck, W. A. (C.)
Oneida—Hunter, C. W. (C)
Ottawa—Roberts, A. J (C.)
Palmer—Simpson, J. P. (L.)
Paris—Allison, W. F. (L.)
Peoria—Burhans, L. A. (C.)
Hanly, H. H. (L.)
Ives, L. (L.)
Miller, S. M. (C.)
Wiens, D. P. (C.)
Peotone—Howe, J. B. (C.)
Peru—Balensiefer, O. (L.)
Pinckneyville—Mead, D. O. (L.)
Pleasantview—Corman, V. M. (L.)
Quincy—Morgan, F. R. (L.)
Rochelle—Stevens, R. E. (C.)
Rockford—Gill, G. P. (L.)
Rock Island—Lachner, B. J. (C.)
Robb, C. E. (L.)
Rushville—Harvey, W. F. (C.)
Salem—Kell, C. T. (L.)
Sandwich—Dakin, R. G. (L.)
Sheldon—Seever, C. W. (L.)
Springfield—Clark, W. V. (L.)
Penniman, W. L. (C.)
Wilkinson, J. J. (L.)
Zaphriades, S. D. (L.)
St. Anne—Ayling, G. H. (C.)
St. Joseph—Knappenberger, T. G. (L.)
Staunton—Hunter, A. H. (L.)
Steger—Wickensimer, J. B. (L.)
Tampico—Terry, H. A. (L.)
Tiskilwa—Hess, H. R. (C.)
Tuscolta—Huber, G. W. (L.)
Victoria—Stewart, R. H. (L.)
Virginia—Blackburn, W. R. (L.)
Waltonville—Wells, J. W. (L.)
Waukegan—Bormann, G. B. (L.)
Claeboe, A. H. (L.)
Weldon—Chapin, C. W. (C.)

INDIANA

Anderson—Brook, E. E. (L.)
Aurora—Marshall, C. C. (L.)
Berne—Schenk, C. H. (L.)
Bloomington—Rogers, R. C. (C.)
Smith, R. D. (C.)
Bridgeton—Bennet, P. R. (L.)
Bringhurst—Carter, E. (L.)
Buck Creek—McCabe, J. E. (L.)
Cicero—King, B. A. (L.)
Claypool—Landis, W. C. (L.)
Colburn—Wagoner, R. H. (L.)
Connersville—Booher, I. E. (L.)
Leffel, J. S. (L.)
Daleville—Tucker, O. A. (C.)
Darlington—Pollon, R. R. (L.)
Decatur—Coverdale, E. G. (C.)
Duggar—Gill, I. J. (L.)
Dunkirk—Heller, N. L. (L.)
East Chicago—Schlicker, A. G. (C.)
Evansville—Baker, C. S. (L.)
Barnes, W. E. (L.)
Fairland—Wells, M. M. (L.)
Fairmount—Aldrich, H. (L.)
Ferdinand—Gugsell, A. F. (C.)
Freeland Park—Hartsock, F. M. (C.)
French Lick—Dillinger, J. R. (C.)
Fort Branch—Stephens, O. C. (L.)
Fort Wayne—Rawles, L. T. (C.)
Gaston—Dunn, F. W. (L.)
Hammond—Bigger, W. M. (C.)
Chevingy, J. J. A. (C.)
Graham, J. A. (C.)
Hardinsburg—Benz, J. (L.)
Hobbs—Morris, T. O. (L.)
Indiana Harbor—Hamilton, R. C. (L.)
Indianapolis—Bull, J. H. (L.)
Cox, H. W. (L.)
Devaney, M. O. (L.)
Hicks, L. C. (L.)
Jones, C. K. (C.)
Kincaid, J. C. (L.)
Kohlstaedt, G. .W. (L.)
Light, M. B. (C.)
Magennis, H. L. (L.)
Mayer, F. W. (L.)
McCoy, E. L. (L.)
Neier, O. C. (C.)
Nolting, H. F. (L.)
Robertson, J. F. (C.)
Rogers, C. (C.)
Walker, H. A. (L.)
Jeffersonville—Reed, A. A. (L.)
Kokomo—Meiner, J. A. (L.)
Lafayette—Morgan A. E. (C.)
Pyke, F. L. (L.)
LaGrange—Rozelle, C. C. (L.)
Lawrenceburg—Fagaly, A. T. (C.)
Leavenworth—Deen, H. H. (L.)
Lemar—Medcalf, N. L. (L.)
Linngrove—McKean, T. J. (L.)
Linton—Custer, A. T. (C.)
Thayer, M. N. (C.)
Lyons—Chambers, B. F. (L.)
Manilla—Barnum, E. (L.)
Marion—Priest, F. A. (C.)
Martinsville—Maxwell, F. R. (L.)
Milroy—Houghland, C. S. (C.)
Mount Etna—Wimmer, G. G. (L.)
Muncie—Cole, R. E. (L.)
Nashville—Turner, J. A. (L.)
New Albany—Baxter, J. W. (C.)
Bird, J. E. (C.)
Briscoe, C. E. (C.)
Wolfe, F. E. (C.)
New Middletown—Smoots, S. A. (L.)
North Terra Haute—Shores, E. M. (C.)
Owensburg—Moore, C. C. (L.)
Oxford—Parker, E. E. (L.)
Peru—Ellers, L. R. (L.)
Petroleum—Morris, G. B. (C.)
Plainfield—Stafford, J. C. (L.)
Portland—Cring, G. V. (L.)
Moran, M. M. (L.)
Nixon, J. E. (L.)
Princeton—Brazelton, O. T. (L.)
Richmond—Duffin, C. E. (C.)
Huffman, W. G. (L.)
Ridgeville—Wallace, J. M. (C.)
Roanoke—Murray, D. E. (L.)
Rochester—Taylor, H. W. (L.)
Salem—Paynter, C. B. (L.)

South Bend—Baker, W. H. (C.)
Barber, A. E. (L.)
Hickman, J. S. (C.)
Miller, H. M. (M.)
Shanklin, R. C. (C.)
South Whitney—Eberhard, F. G. (C.)
Terre Haute—Barbazette, L. F. (L.)
Cook, J. H. (C.)
Hewitt, J. H. (L.)
Hutchings, B. M. (C.)
Ricker, J. W. (L.)
Spigler, O. R. (C.)
Stunkard, T. C. (M.)
Valparaiso—Seipel, H. O. (L.)
Wabash—Sholty, L. O. (L.)
Whisler, F. M. (C.)
West Union—McCaskey, G. H. (L.)

IOWA

Algona—Burke, C. H. (L.)
Ames—Rice, E. (C.)
Atkins—Park, P. A. (C.)
Atlantic—Burke, C. B. (C.)
Avoca—Ferguson, S. M. (L.)
Bend—Coe, U. C. (L.)
Bloomfield—Shelton, C. D. (L.)
Bouton—Anderson, P. O. (L.)
Carroll—Freeman, M. J. (L.)
Cedar Falls—Vanderveer, F. L. (C.)
Cedar Rapids—Hasek, V. H. (L.)
Johnston, B. R. (M.)
Ruml, W. (C.)
Vorpahl, R. A. (C.)
Charles City—Seymour, W. H. (C.)
Cherokee—Eaton, R. G. (C.)
Clarksville—Scripture, J. L. (C.)
Clinton—Anderson, M. E. (L.)
Heusinkveld, H. J. (L.)
Keefe, F. M. (L.)
Council Bluffs—Hennessy, A. V. (M.)
Davenport—Cantwell, J. D. (L.)
Harkness, G. F. (C.)
Speers, W. F. (C.)
Decorah—Conrad, A. E. (C.)
Dedham—Bowie, C. C. (L.)
Des Moines—Pearson, W. W. (M.)
Peck, J. H. (M.)
Dubuque—Linehan, L. J. (L.)
Schrup, J. H. (C.)
Garden Grove—Lyon, W. E. (L.)
Gravity—Ambrose, E. C. (L.)
Grinnell—Lauder, C. H. (L.)
Independence—Lindsay, H. A. (C.)
Knoxville—Wright, J. R. (L.)
Lansing—Lytle, C. C. (L.)
Lowden—Charlton, A. J. (L.)
Mable Rock—O'Keefe, C. J. (L.)
Marengo—Manahan, C. A. (L.)
Masonville—Bowman, L. J. (L.)
Maxwell—Trotter, W. M. (C.)
Merrill—Cody, W. E. (L.)
Monona—Renshaw, K. (L.)
Muscatine—Johnston, W. H. (L.)
Newton—Hinshaw, S. E. (C.)
Oelwein—Cole, J. F. (C.)
Risk, H. (L.)
Pella—Aschenbrenner, C. (C.)
Rockport—Weise, H. G. (C.)
Rock Valley—Leonard, E. R. (L.)
Ruthven—Huston, H. M. (L.)
Sibley—Winkler, F. P. (L.)
Sioux City—Kilberne, J. M. (C.)
Magoun, C. E. (L.)
State Center—Pence, L. W. (L.)
Sutherland—Nichols, F. L. (L.)
Wellman—Miller, E. D. (L.)
West Union—Mercer, C. D. (L.)

KANSAS

Arkansas City—Clayton, E. H. (C.)
Atchison—Ferguson, C. S. (C.)
McKeehan, L. P. (L.)
Blue Mound—Barnes, H. M. (L.)
Clay Center—Speer, W. L. (L.)
Easton—Adams, A. R. (L.)
Ellis—Blake, C. D. (C.)
Ellsworth—Downs, J. M. (M.)
Mayer, B. H. (L.)
Eureka—Garrison, G. B. (L.)
Fort Scott—Lardner, J. C. (C.)
Fort Worth—Terry, H. H. (L.)
Fredonia—Young, W. H. (L.)
Garden City—Bailey, S. (L.)
Garnett—Turner, A. J. (L.)
Greenburg—Miller, R. H. (L.)
Haddam—Swab, C. M. (L.)
Hesston—Wedel, A. J. (L.)
Horton—Harker, H. J. (C.)
Iola—Cox, O. L. (C.)
Reid, J. T. (C.)
Kansas City—Barney, L. F. (C.)
Gray, G. M. (M.)
Smith, J. E. (L.)
Spake, L. B. (C.)
Lawrence—Smith, L. A. (L.)
Lebo—Mills, C. J. (L.)
McCune—Chapin, C. (L.)
McPherson—Hall, M. (L.)
Mineral [illegible] (L.)
Mount [illegible] H. G. (C.)
Muscotah—Barkers, O. O. (L.)
Newton—Kalbfleisch, E. L. (L.)
Osawatomie—Carmichael, F. A. (C.)
Perry—Weisgerber, A. L. (C.)
P[illegible] W. V. (L.)
[illegible] A., Jr. (L.)
[illegible] A. (C.)
Scandia—Haggman, C. V. (C.)
St. George—Fry, C. S. (L.)
Wakarusa—Wyatt, C. A. (L.)
Wichita—Ebright, E. D. (C.)

KENTUCKY

Adairville—Russell, J. L. (L.)
Ashland—Salmon, J. M. (C.)
Benton—Eddleman, O. A. (L.)
Berea—Lichtwardt, H. A. (L.)
Bowling Green—Blackerby, P. E. (C.)
Caney—Wheeler, J. C. (L.)
Central City—Woodburn, C. (L.)
Christianburg—Smith, J. N. (L.)
Clinton—Peebles, W. F. (L.)
Columbia—Miller, O. P. (L.)
Covington—Caldwell, A. G. (L.)
White, H. C. (C.)
Danville—Jackson, J. D. (C.)
Dawson Springs—Nichols, L. E. (L.)
Dayton—Struble, C. H. (C.)
Edgoten—Rollow, S. J. (C.)
Eminence—Bell, M. (C.)
Holt, J. W. (L.)
Falmouth—McKinney, W. A. (L.)
Wallace, L. G. (C.)
Ford—Pennington, J. F. (L.)
Georgetown—Johnson, H. V. (L.)
Greenville—Slaton, H. Y. (L.)
Hellier—Preston, J. C. (L.)
Hopkinsville—Bell, A. (C.)
Miller, O. F. (L.)
Horse Cave—Edwards, F. (L.)
Irvine—Edwards, E. E. (L.)
Kuttawa—Phillips, T. L. (L.)
Lakeland—Davidson, A. J. (L.)
Leesburg—Blount, H. C. (L.)
Lexington—Vance, C. A. (C.)
Willis, J. E. H. (L.)
London—Brock, G. S. (C.)
[illegible] R. T. (C.)
[illegible]
[illegible], J. G. (L.)
Emrich, W. H. (L.)
Kerns, I. N. (L.)
Mathewsian, M. H. (L.)
Myer, S. P. (C.)
Nichols, C. L. (L.)
Pirkey, E. L. (L.)
Pottinger, S. L. (C.)
Stanley, S. E. (L.)
Madisonville—Strother, F. P. (C.)
McDaniels—Tucker, J. C. (L.)
Moorefield—Kash, C. W. (L.)
Mount Sterling—Demaree, O. B. (C.)
Newport—Batte, J. T. (L.)
Oscar—Usher, H. V. (L.)
Paducah—Hearne, R. E. (C.)
Jaris—Swetnam, E. (L.)
Penick—Putnam, J. L. (L.)
Port Royal—Chapman, O. P. (L.)
Ravenna—Snowden, R. R. (L.)
Red House—Phelps, R. M. (L.)
Rome—Barr, E. (L.)
Russellville—Byrne, W., Jr. (C.)
Sandy Hook—Hunter, C. R. (L.)
Shawhan—Anderson, H. B. (L.)
Shelbyville—Smith, E. B. (C.)
Slaughters—Whitson, J. H. (L.)
Smithfield—Hancock, C. L. (L.)
Springfield—Hyatt, M. W. (C.)
Tolu—Lowery, O. T. (L.)
Valley Station—Foss, S. S. (C.)
Warsaw—Duvall, C. H. (L.)
Wickliffe—Williams, A. J. (L.)
Wilmore—McLean, H. L. (C.)
Winchester—Lyon, H. (L.)
Wingo—Mullins, S. (L.)

LOUISIANA

Alexandria—Holloman, L. W. (L.)
Oglesby, J. M. (L.)
Angie—McNeese, W. T. (L.)
Boyce—Phillips, J. W. (L.)
Bunkie—Davis, D. B. (C.)
Converse—Paul, B. I. (L.)
Effie—Lafargue, L. D. (L.)
Eros—Ewing, J. L. (L.)
Evergreen—Buck, W. P., Jr. (L.)
Franklin—Kappel, A. C. (L.)
Girard—Chambers, H. C. (L.)
Grangeville—Tyler, L. I. (L.)
Harvey—Hirsch, J. G. (L.)
Lafayette—Clark, L. O. (C.)
Lake Charles—Iles, D. C. (C.)
Lecompte—Lett, F. M. (C.)
M[illegible] R. E. (C.)
M[illegible] (L.)
Tompkins, R. C. (C.)
New Orleans—Bacon, E. F. (C.)
Balsinger, W. E. (C.)
Bath, J. (L.)
Bell, T. P. (L.)
Blackshear, S. M. (L.)
Bloch, E. (L.)
Bordenave, C. J. (L.)
Burgheim, C. A. (C.)
Hyman, D. (L.)
Keitz, E. S. (L.)
May, C. P. (L.)
Miller, C. R. (L.)
Nix, J. T. (L.)
Salerno, E. F. (L.)
Taquino, G. J. (L.)
Powhatan—Perot, P. L. (L.)
Shreveport—Erickson, C. B. (L.)
Furman, F. S. (M.)
Taylortown—Simpson, E. E. (L.)
Thibodaux—Kleinpeter, E. A. (L.)
Winnfield—Peters, A. M. (L.)

MAINE

Bangor—Cox, J. F. (L.)
Bucksport—Tweedie, H. V. (C.)
Camden—Hutchins, J. G. (L.)
Deer Isle—Clark, R. W. (L.)
Lathrop—Longfield, F. J. (C.)
Lewiston—Ma[illegible] T. E. (L.)
N[illegible] F. (C.)
P[illegible] I. V. (L.)
Dennett, C. G. (L.)
Solon—Piper, J. O. (L.)
Waterford—Stimpson, A. J. (L.)
Westbrook—Hills, L. L. (C.)

MARYLAND

Baltimore—Banks, M. H. (L.)
Bay, R. P. (M.)
Callander, C. L. (L.)
Chambers, T. R. (M.)
Clark, S. E. (L.)
Cole, J. W. (C.)
Davis, J. S. (C.)
Dickson, I. C. (L.)
Ebe, R. W. (L.)
Lentz, C. S. (L.)
Lloyd, O. S. (L.)
Nicholson, F. P. (L.)
Raemore, M. L. (L.)
Shamer, M. E. (L.)
Skladowsky, J. A. (L.)
Spencer, L. C. (C.)
Stansbury, H. H. (L.)
Wantz, S. R. (L.)
Waters, C. A. (L.)
Weisman, P. G. (L.)
Whittle, W. O. (L.)
Cumberland—F. G. (L.)
Wilson, J. H. (L.)
Easton—Hammond, W. T. (L.)
Govans—Baldwin, J. C. (L.)
Havre de Grace—Bay, J. H. (L.)
Collinson, J. (L.)
Peru—Wagner, M. L. (L.)
Roland Park—Willock, J. S. (C.)
Ruxton—Carswell, W. S. (L.)
Salisbury—Elderdice, J. M. (C.)
Miller, F. A. (L.)

MASSACHUSETTS

Abington—Stevens, W. R. (L.)
Allston—Wallace, H. L. (L.)
Baldwinsville—Robie, W. F. (L.)
Belmont—Small, E. W. (L.)
Bernardston—Hodskins, E. B. (C.)
Beverly—Lawlor, J. F. (L.)
Boston—Bartol, J. W. (M.)
Brown, P. (M.)
Clark, J. D. (C.)
Connolly, W. E. (L.)
Crosbie, A. H. (M.)
Dana, H. W. (M.)
Darling, C. B. (C.)
Draper, F. E. (C.)
Goethals, T. R. (L.)
Holland, H. T. (C.)
King, N. J. (L.)
Lancaster, W. B. (L.)
Lovett, R. W. (M.)
Luce, L. A. (C.)
May, J. S. (C.)
McVey, F. J. (L.)
Medalia, L. S. (M.)
Mollica, Z. A. (L.)
Monahan, E. J. (L.)
Morrison, L. B. (C.)
Poirier, G. H. (L.)
Sadler, R. A. (L.)
Scanlan, T. J. (C.)
Seymour, M. (C.)
Spaulding, J. D. (L.)
Taylor, J. D. (L.)
Vamvas, A. D. (L.)
Watts, H. F. R. (C.)
Boston—Webster, F. A. (C.)
Wheeldon, T. F. (L.)
Brookline—Bonelli, R. P. (L.)
Saeger, E. T. (L.)
Cambridge—Cahill, T. J. (L.)
Connor, G. A. (L.)
Chicopee—Agnew, J. R. (L.)
Clinton—Goodwin, J. J. (M.)
Cohasset—Hinchliffe, F. (L.)
Danvers—Mains, H. L. (L.)
East Boston—Liberti, A. (L.)
East Cambridge—Young, W. B. (L.)
Fall River—Learned, E. T. (L.)
Sullivan, A. J. (L.)
Fitchburg—Donovan, T. R. (L.)
Franklin—Hussey, C. B. (C.)
Glocester—Voss, J. W. (C.)
G[illegible] W. H. (L.)
[illegible]vanaugh, M.
[illegible] (C.)
Hatfield—Bonneville, A. J. (C.)
Haverhill—Garbelnick, D. A. (L.)
McLaughlin, A. O. (L.)
Stone, T. N. (L.)
Haydenville—Perry, C. E. (C.)
Holbrook—Crawford, F. W. (L.)
[illegible] (C.)
[illegible] (C.)
Laczynski, F. S. (L.)
Robert, G. C. (C.)
Wetherell, B. D. (L.)
Lancaster—Bartol, E. F. W. (L.)
Lawrende—Dearborn, H. F. (C.)
O'Reilly, F. A. (L.)
Lynn—Hyde, H. V. (L.)
Medford—Cassidy, F. C. (L.)
Haley, P. J. D. (L.)
Melrose—Pike, F. F. (M.)
Milford—Lally, F. H. (L.)
Mill River—Sellew, R. C. (L.)
Milton—Rowe, C. A. (L.)
New Bedford—Shanks, C. (L.)
Young, E. W. (L.)
Newburyport—Hewitt, A. J. (L.)
Newtonville—Clark, F. R. (C.)
Northampton—Dow, F. E. (C.)
North Attelboro—Teller, J. E. (L.)
North Brookfield—Prouty, A. H. (C.)
Norwood—Kaufman, M. F. (L.)
Peabody—Pomeroy, H. S. (L.)
Pittsfield—Bard, H. H. (L.)
Hannon, D. F. (L.)
Johnson, K. (L.)
Quincy—Cook, J. H. (L.)
Randolph—Higgins, G. V. (L.)
Myrick, A. W. (L.)
Salem—Aronson, C. (L.)
Scituate—Cleverly, H. F. (L.)
Somerville—Dailey, E. J. (C.)
Pote, L. H. (L.)
Shaw, F. (L.)
Springfield—Benner, R. S. (C.)
LaRochelle, A. H. (L.)
Schadt, G. L. (C.)
Street, C. E. (C.)
Tewksbury—Quennell, W. L. (L.)
Uxbridge—Little, G. T. (L.)
Vineyard Haven—Meyhew, O. S. (L.)
Waltham—Dascombe, O. L. (L.)
Webster—Sullivan, J. C. (L.)
Wellesley Hills—Proctor, G. C. (L.)
Westboro—Mahoney, W. F. (L.)
West Boylston—Trask, H. W. (L.)
Westfield—Marr, R. M. (L.)
West Somerville—Ruston, W. D. (L.)
West Springfield—Steele, G. L. (L.)
Wilmington—Buck, W. E. (L.)
Winchendon—Cross, L. K. (L.)
Kenney, C. B. (L.)
Winchester—Robb, H. (M.)
Sheely, R. W. (L.)
Woburn—Carroll, J. P. (L.)
Wollaston—Curtis, W. G. (C.)
Merritt, R. E. (L.)
Worcester—Baff, M. (L.)
McGillicuddy, J. T. (C.)
Puskunigis, F. B. (L.)
Wrentham—Proctor, T. M. (L.)

MICHIGAN

Adrian—Miller, R. F. (L.)
Ann Arbor—Canfield, R. B. (M.)
Auburn—Ballard, S. L. (L.)
Bay City—Dumond, V. H. (L.)
Lawrence, H. P. (L.)
Benton Harbor—Burrell, H. J. (C.)
Stevenson, B. L. (L.)
Carson City—Hargrove, D. V. (C.)
Cobleville—Westcott, L. E. (L.)
Colon—Doran, W. E. (C.)
Crystal Falls—Haight, A. L. (L.)
Custer—Duguid, L. H. (L.)

Detroit—Adams, D. C. (L.)
  Baesluck, F. W. (M.)
  Benjamin, W. O. (L.)
  Burnham, F. V. (L.)
  Burt, R. C. (L.)
  Closz, H. F. (L.)
  Courie, W. F. (L.)
  Crow, S. C. (C.)
  Delbridge, J. J. (C.)
  Gottschalk, F. W. (L.)
  Hardy, G. C. (L.)
  Kruger, D. R. (L.)
  Lange, A. H. (L.)
  MacKnight, R. S. (L.)
  Mallory, N. A. (L.)
  Maunders, J. E. (C.)
  Milligan, F. L. (L.)
  Morris, I. S. (C.)
  Parker, B. D. (C.)
  Rupp, J. R. (L.)
  Schaller, G. J. (C.)
  Slevin, J. H. (C.)
  Timme, A. R. (L.)
  Weingarden, D. (L.)
Dowagiac—Herkimer, G. R. (C.)
East Detroit—Sanderson, A. R. (L.)
Evart—Conover, W. J. (L.)
Flint—Reeder, F. E. (L.)
  Reynolds, A. J. (C.)
Fort Wayne—Brown, R. D. (L.)
Gaylord—Knapp, H. W. (C.)
Grand Blanc—Reid, W. C. (L.)
Grand Haven—Long, C. E. (L.)
Grand Ledge—Schilz, E. A. (L.)
Grand Rapids—Hunderman, E. D. (L.)
  Lamb, G. F. (L.)
  Lyman, W. D. (M.)
Hancock—Power, L. M. (L.)
Hillsdale—Martindale, E. A. (L.)
Holland—Leenhout, A. (C.)
Iron Mountain—Cruse, S. E. (M.)
Jackson—Seybold, G. A. (C.)
Kalamazoo—Sears, M. M. (L.)
Kearsarge—Oler, V. L. (L.)
Lake City—Abbott, N. (L.)
Lansing—Bellinger, E. G. (L.)
  Drolett, A. J. (L.)
  Galbraith, D. A. (L.)
Lennon—Conley, J. A. (L.)
Manistee—Lewis, L. A. (L.)
  McKay, A. A. (C.)
Marquette—Youngquist, L. L. (L.)
Muskegon—Hannum, F. W. (L.)
Navarre—Benjamin, C. C. (L.)
Petersburg—Meck, H. L. (L.)
Pittsford—Alleger, W. E. (L.)
Plymouth—Kimble, J. H. (L.)
Pontiac—Orton, E. (C.)
Port Huron—Bowden, I. (C.)
Saginaw—Friedlaender, B. (M.)
Scottville—Hunt, I. L. (L.)
St. Joseph—Allen, R. C. (L.),

MINNESOTA

Beardsley—Weir, J. D. (C.)
Breckenridge—Miller, J. L. (C.)
Cass Lake—Fraker, S. R. (L.)
Chatfield—Woodruff, C. W. (L.)
Duluth—Cosgrove, J. H. (L.)
Eveleth—Rawlings, H. F. (L.)
Fairbault—Haessly, S. B. (C.)
  Warren, F. S. (C.)
Graceville—Oliver, C. I. (C.)
Granite Falls—Levy, M. (L.)
Kiester—Urstadt, O. H. (C.)
Lamberton—Walker, C. C. (C.)
Litchfield—Danielson, K. A. (L.)
Long Prairie—Parrott, B. W. (C.)
Minneapolis—Booth, A. E. (C.)
  Fleming, A. S. (C.)
  Hamel, A. L. (L.)
  Hoyde, R. (L.)
  Kieck, E. G. (L.)
  Martin, H. M. (M.)
  McKinney, F. S. (L.)
  Meleck, H. N. (L.)
  O'Donnell, J. E. (L.)
  Smith, N. M. (L.)
  Taft, W. L. (L.)
Moorhead—Verne, V. E. (C.)
[illegible] .)
[illegible] (L.)
[illegible])
[illegible], S. C. (C.)
St. Cloud—McDowell, J. P. (L.)
St. Paul—Bosworth, R. (L.)
  Lerche, W. (C.)
  Pearson, F. R. (L.)
  Perry, C. G. (L.)
  Rothschild, H. J. (L.)
  Vonder Weyer, W. H. (L.)
Stewartville—Fawcett, C. E. (C.)
Virginia—Empie, W. M. (L.)
Wilmont—Williams, A. B. (C.)
Winona—Tweedy, G. J. (C.)

MISSISSIPPI

Arm—Armstrong, M. C. (L.)
Artesia—Lehmberg, E. (L.)
Belen—Furr, J. E. (L.)
Belzoni—Jackson, J. S. (C.)
Brookhaven—McLeod, N. A. (C.)
Brooklyn—Young, R. N. S. (L.)
Caseyville—Magee, D. W. (L.)
Clarksdale—Primrose, J. W. (L.)
Columbus—Davis, J. F. (C.)
[illegible] B. (L.)
[illegible] B. (L.)
[illegible] O. (L.)
[illegible] C. C. (L.)
  Hudson, L. D. (L.)
  McKinnon, H. L. (C.)
Highpoint—Kemp, E. D. (L.)
Hudsonville—England, J. F. (L.)
Issaquena—Pool, W. C. (L.)
Jackson—Crisler, J. (C.)
  Dobson, W. B. (M.)
Kosciusko—Rouse, E. C. (L.)
Lena—Russell, P. B .(L.)
Louin—Montgomery, G. W. (C.)
Magee—Posey, E. L. (L.)
Magnolia—Moore, J. S. (L.)
McComb—Brock, D. T. (L.)
Meridian—Bailey, J. T. (L.)
  Flake, H. L. (C.)
  Royals, T. E. (L.)
  Tackett, J. R. (C.)
Merigold—Wiggins, J. P. (L.)
Moselle—Butler, J. C. (L.)
Natchez—Watkins, M. (C.)
New Albany—Newton, W. L. (L.)
Picayune—Woodward, J. I. (L.)
Poplarville—Buckley, J. C. (L.)
Prentiss—Magee, J. B. (C.)
Sandersville—Copeland, W. D. (L.)
Sumrall—Bryan, A. C. (L.)
  Gaddy, S. J. (L.)
Whynot—Phillips, T. E. (L.)
Wiggins—Pou, J. F., Jr. (C.)
Winona—Baskerville, G. (M.)

MISSOURI

Advance—Moore, C. (C.)
Aullville—Aber, W. H. (L.)
Ava—Ferguson, J. D. (L.)
Bethel—Smith, L. L. (L.)
Bevier—Brewington, G. F. (L.)
  Christie, J. D. (L.)
  Gronoway, T. P. (L.)
Bonne Terre—Monroe, L. E. (L.)
Breckenridge—Meredity, O. O. (L.)
Brookfield—Ferguson, L. J. (C.)
  McLarney, J. T. (L.)
Browninig—Ingram, W. C. (L.)
Campbell—Hammersley, G. O. (C.)
Carthage—Powers, E. (C.)
Clearmont—Dowell, H. S. (C.)
Corder—Carthrae, L., Jr. (C.)
Craig—Ottman, J. C. (L.)
Elsberry—Keeling, F. V. (L.)
Excelsior Springs—Baird, J. E. I. (C.)
  McCulloch, G. A. (C.)
Flat River—Cecil, G. E. (C.)
Fulton—Owen, H. I. (L.)
Graham—Morgan, E. L. (C.)
Granby—Bowers, J. S. (L.)
Hannibal—Cooper, J. F. (C.)
Harrisonville—Crawford, H. S. (C.)
Joplin—James, R. M. (C.)
  Leaming, H. A. (C.)
Kahoka—Bridges, J. R. (C.)
Kansas City—Butler, O. W. (C.)
  Castles, J. E. (L.)
  Davis, H. B. (C.)
  Gammage, T. R. (L.)
  Jones, A. E. (L.)
  Major, R. H. (C.)
  Miller, L. B. (L.)
  Montgomery, J. G. (L.)
  Ray, J. E. (L.)
  Roberts, S. E. (C.)
  Sharon, F. F. (L.)
  Smith, D. O. (M.)
  Van Eman, F. T. (C.)
Kirksville—Bigsby, F. L. (C.)
  Dodson, J. F. (C.)
Leadwood—Appleberry, R. (C.)
Le Monte—Mitchell, E. (L.)
Linn Creek—Moulder, J. D. (L.)
Marionville—O'Dell, T. T. (C.)
Marshall—Powers, H. C. (C.)
Marshfield—Bruce, J. R. (L.)
Moberly—Megee, O. K. (L.)
Mount Vernon—Fulton, W. L. (C.)
Newark—Pierce, D. (L.)
New Haven—Mankopf, B. E. (C.)
Olean—Spalding, L. M. (L.)
Osborn—Shafer, F. M. (L.)
Palo—Mount, R. L. (C.)
Prairie Home—Meredith, A. L. (L.)
Princeton—Stacy, E. W. (C.)
Qulin—Cook, S. (L.)
Rolla—Horrom, G. W. (L.)
Rushville—Gardner, E. L. (L.)
Sedalia—Barnum, K. R. (L.)
  Walker, E. R. (C.)
Springfield—Fulbright, J. H. (C.)
  James, J. D. (C.)
  Tucker, C. A. (L.)
St. Joseph—Leonard, P. I. (C.)
  Witten, H. O. (C.)
St. Louis—Ambrose, O. A. (C.)
  Aufderheide, W. D. (C.)
  Brown, J. Y. (M.)
  Bryan, R. S. (M.)
  Burford, C. E. (M.)
  Burns, S. S. (C.)
  Carley, H. D. (C.)
  Cook, J. T. (L.)
  Davis, F. L. (L.)
  Dierkes, G. J. (L.)
  Dyer, C. P. (L.)
  Halley, C. D. (C.)
  Hartman, J. A. (C.)
  Hertel, A. L. (L.)
  Koenig, O. M. (L.)
  Konzelman, J. A. (L.)
  May, B. F. (L.)
  McCornack, G. C. (L.)
  Moershel, H. G. (L.)
  Muller, C. Q. (I.)
  Niedringhaus, R. E. (C.)
  Opie, E. L. (L. C.)
  Raines, Q. C. (C.)
  Randle, H. T. (L.)
  Sauer, W. E. (C.)
  Schmidt, I. H. (L.)
  Schwartz, F. O. (L.)
  Sharpe, N. W. (C.)
  Sparhawk, W. J. (L.)
  Stewart, S. S. (L.)
  Tate, B. F. (C.)
  Weygandt, S. F. (L.)
Stella—Edmondson, J. L. (L.)
Vichy—Jones, R. E. (L.)
West Line—Bokhof, D. H. (C.)
West Plains—Thornburgh, A. H. (M.)
Williamsville—Torn, J. L. (L.)
Winston—Coats, C. C. (L.)

MONTANA

Butte—Biddle, G. (L.)
  Gleason, M. H. (L.)
  Smith, L. W. (L.)
Forsyth—Holmes, H. S. (L.)
Great Falls—Bice, C. W. (L.)
  Longeway, A. F. (C.)
Helena—Sweet, E. A. (C.)
  Thompson, J. G. (C.)
Hobson—Estabrook, W. E. (L.)
Livingston—Leard, S. E. (L.)
  Windsor, G. A. (L.)
[illegible] (L.)
[illegible] J. M. (C.)

NEBRASKA

Aldı—Pitts, S. O. (L.)
Beaver City—Copeland, C. C. (C.)
Belvidere—Kelly, W. E. (L.)
  Lahners, T., Jr. (L.)
Bloomfield—Mettlen, J. H. (C).
Bostwick—Pinkerton, W. J. (C.)
Carroll—Phillips, W. H. (L).
Columbus—Morrow, F. H. (C.)
Dwight—Srb, J. J. (L.)
Fairbury—Taylor, J. S. (C.)
Franklin—Smith, H. C. (C.)
Fremont—Van Metre, R. T. (C.)
Genoa—Davis, H. (M.)
Grand Island—Boyden, H. B. (L.)
Hastings—Bore, A. J. (L.)
Hebron—Platt, O. R. (L.)
Hooper—Heine, W. H. (C.)
Lincoln—Des Jardien, G. A. (L.)
  Smith, R. L. (L.)
Malmo—Scudder, R. (C.)
Neligh—Clements, S. C. (M.)
Niobrara—Sissakian, A. H. (L.)
North Bend—Doane, W. E. (L.)
Oakdale—Earle, G. W. (C.)
Omaha—Eggers, H. E. (M.)
  Holst, J., Jr. (C.)
  Prince, N. C. (C.)
  Sumney, H. C. (C.)
Ponca—Young, G. A. (C.)
Schuyler—Kolouch, F. G. (L.)
Scottsbluff—Plehn, F. W. (L.)
St. Edwards—Jones, T. J. (C.)
Walthiel—Limburg, J. I. (L.)
Wausa—Lake, L. B. (L.)
  Neumann, E. V. (L.)
Winside—Simon, V. S. (L.)
York—Bell, J. S. (L.)

NEVADA

East Ely—Bowdle, R. A. (L.)
Rochester—Wilson, J. B. (L.)
Stewart—Morrow, W. B. (L.)

NEW HAMPSHIRE

Concord—Sullivan, D. E. (C.)
Conway—Wiggin, C. M. (L.)
Keene—Wright, W. L. (L.)
Lancaster—Carpenter, H. B. (C.)
Littleton—Cameron, E. A. (L.)
Manchester—Minville, E. D. (L.)
  Towle, M. H. (L.)
Meredith—Darling, I. A. (L.)
Milford—Lovejoy, F. H. (L.)
Milton Mills—Anderson, H. E. (L.)
Nashua—Daudelin, A. (L.)
North Conway—Snow, S. D. (L.)
Portsmouth—Kittredge, P. J. (L.)
Troy—Platts, H. S. (L.)
West Concord—Quinn, C. H., (C.)
Wolfeboro—Cotton, C. B. (C.)
Woodsville—Spear, F. E. (L.)

NEW JERSEY

Arlington—Rieck, W. R. (L.)
Atlantic City—Bossert, C. L. (C.)
  Senseman, T. (C.)
Atlantic Highlands—Failing, B. E. (M.)
Bridgeton—Corson, E. S. (C.)
  Sheppard, A. G. (C.)
Butler—Coates, G. C. (C.)
Carteret—Reason, J. J. (L.)
Dunellen—Longbothum, G. T. (L.)
Elizabeth—Buck, A. O. (C.)
  Marone, C. R. (L.)
Hackensack—Denig, R. D. (L.)
Hoboken—Broesser, H. V. (M.)
Irvington—Mieran, E. W. (L.)
Jersey City—De Fuccio, C. P. (L.)
  Little, A. W. (L.)
  MacMurrough, F. P. K. (C.)
  Purdy, C. H. (C.)
  Riordan, T. J. O. (L.)
  Rowe, N. L., Jr. (L.)
  Thomas, R. B. (L.)
  Wechsler, J. (L.)
Merchantville—Donoho, A. P. (L.)
Millville—Mayhew, C. H. (L.)
Montclair—Synnott, M. J. (M.)
Morristown—Johnson, G. L. (L.)
  Lawless, N. W. (L.)
Mount Vernon—McCormich, W. E. (L.)
Newark—Boyle, T. P. (C.)
  Cohn, R. M. (L.)
  Dutton, V. W. (L.)
  Foster, W. S. (C.)
  Ill, E. A. (L.)
  O'Neill, C. L. (L.)
  Rapoport, E. (L.)
  Roberts, F. A. (C.)
  Sherman, E. S. (L.)
  Van Ness, H. R. (L.)
  Wegman, M. (L.)
Orange—Adams, J. K. (L.)
  Levine, J. A. (L.)
  Tymeson, W. R. (L.)
  Wakeley, W. E. (L.)
  Webb, H. D. (C.)
Passaic—Lobsenz, N. P. (L.)
Paterson—Brancato, P. (L.)
  Briody, H. E. (L.)
  Hess, H. B. (L.)
  Kane, C. J. (L.)
  Keating, C. A. (C.)
  Mazzarella, C. (L.)
  Ward, A. H. (C.)
Penns Grove—Fairchild, S. R (L.)
Perth Amboy—Lund, J. L. (C.)
Pleasantville—Hudson, W. J. (L)
Princeton—Vanneman, J. S. (L.)
Red Bank—Rullman, W. A. (L.)
Ridgefield Park—Duffy, J. E. (L.)
Rutherford—Cottrell, W. (L.)
Sparta—Jacob, A. N. (C.)
Spring Lake—Savannah, J. G. (L.)
Tenafly—McDannald, W. S. (L.)
Trenton—Baldauf, H., Jr. (L.)
  Kackdoorian, V. (L.)
  Sista, C. R. (L.)
Upper Montclair—McRae, A. J. (L.)
Vineland—Hatch, L. F. (C.)
West Hoboken—Stein, J. M. (L.)
West New York—Buckmaster, C. G. (L.)
Wildwood—Tomlin, H. H. (L.)
Williamstown—Black, E. S. (L.)

NEW MEXICO

Albuquerque—Elder, J. W. (C.)
  Jameson, C. H. (C.)
  Kirkwood, R. C. (M.)
  Milford, E. S. (L.)
Buchanan—Harber, H. P. (L.)
Dulce—Wyckoff, C. L. (L.)
Roswell—Kinsinger, J. W. (C.)
Santa Rosa—Craig, S. S. (C.)
Silver City—Bullock, E. S. (M.)
  Duncan, E. A. (M.)
  Hooper, E. W. (C.)

NEW YORK

[illegible] M. (L.)
[illegible] (L.)
[illegible] (M.)
Cox, F. J. (M.)
Mullens, C. E. (C.)
O'Brien, J. P. (M.)
Vogel, H. A. (L.)
Alexandria Bay—Hartman, L. J. (C.)
Amsterdam—Knapp, R. J. (L.)
Auburn—Seccomb, M. L. (C.)
[illegible] M. (L.)
[illegible] H. M. (L.)
[illegible] Bechtell, R. H. (L.)
Bovina Center—Whitcomb, N. B. (L.)
Bronxville—Wilson, M. C. (C.)
Brooklyn—Beinfield, H. H. (L.)
Bernstein, J. E. (L.)
Bregman, P. B. (L.)
Cosgrove, J. E. (C.)
Costello, P. V. (C.)
Danzar, S. (L.)
Delatour, H. B. (M.)
Field, M. C. (C.)
Frank, S. (C.)
Hargitt, C. A. (L.)
Hergert, E. L. (L.)
Jarrett, A. R. (C.)
Lehrich, W. (L.)
Livingston, W. H. (L.)
Livingstone, D. (L.)
Moehle, W. (L.)
Mondini, C. (L.)
Neuss, W. (C.)
Newman, B. (L.)
Place, E. C. (L.)
Rabbiner, B. (L.)
Reid, T. M., Jr. (L.)
Shapiro, S. (L.)
Shay, J. J. (L.)
Smith, C. G. (L.)
Smith, J. H. (L.)
Weithas, R. C. (L.)
Welch, D. E. (L.)
Zimtbaum, L. (L.)
Buffalo—Barone, C. J. (L.)
Barone, G. C. M. (L.)
Barr, J. P. (C.)
Bixby, B. J. (C.)
Callahan, A. C. (L.)
Candee, P. J. (C.)
Carr, C. J. (C.)
Clark, A. H. (L.)
Connors, T. W. (C.)
Flannery, J. M. (L.)
Harrison, W. B. (L.)
Heller, J. (L.)
Hochman, H. D. (L.)
Kiefer, J. N. (L.)
Kujawa, F. M. (L.)
Laport, R. G. (L.)
Linklater, E. R. (L.)
Ludwig, H. J. (L.)
Lynch, W. S. (L.)
McKee, O. S. (L.)
McMahon, M. J. (L.)
Meister, E. F. (L.)
Palmer, A. W. (L.)
Palmer, F. H. (L.)
Reinstein, V. (L.)
Willard, F. B. (C.)
Zingsheim, F. (C.)
Campbell—Sellack, S. Z. (L.)
Canandaigua—Allen, R. V. (C.)
Brooks, C. V. (C.)
Canastota—Barton, S. T. (C.)
Canisteo—Whiting, G. L. (C.)
Cape Vincent—Bentley, N. P. (C.)
Corning—Gregorius, R. F. (L.)
Starr, F. H. (C.)
Cortland—Higgins, R. P. (L.)
McGraw, W. H. (C.)
Dolgeville—Barney, F. M. (C.)
[illegible] R. (L.)
[illegible] ns, R. E. (L.)
[illegible] iter, H. C. (C.)
Fort Slocum—Hamilton, S. T. (L.)
Geneva—Brewer, I. W. (L.)
Collie, J. J. (C.)
Gorham—Williamson, C. C. (L.)
Greenport—Smith, E. W. (L.)
Hancock—Acheson, J. E. (L.)
Hartsdale—Tilden, W. C. (C.)
Herkimer—Canfield, J. E. (C.)
Graves, J. W. (L.)
Holland—Mann, H. C. (L.)
Hollis—Marshall, D. T. (C.)
Hoosic—Clark, W. L. (L.)
Hoosic Falls—McGrath, T. A. (L.)
Hornell—Barney, B. A. (C.)
Place, M. A. (L.)
Jamestown—Fess, R. C. (L.)
Johnson, M. J. (L.)
Johnson City—Farrell, W. J. (L.)
Kinderhook—Garnsey, N. D. (L.)
Kingston—Chandler, G. F. (C.)
Larkin, J. F. (L.)
Stelle, L. K. (L.)
La Fargeville—Foakes, J. T., Jr. (L.)
Tinkess, A. L. (C.)
Livonia—Wicker, F. A. (C.)
Lockport—Wheeler, L. H. (L.)
Long Island City—Anderson, A. J. (L.)
Combs, A. C. (L.)
Howard, J. G. (C.)
Lowville—Bassett, H. A. (L.)
Lyons—Simpson, R. S. (C.)
Manlius—Curtiss, C. E. (L.)
Middlesex—Chaffee, F. M. (L.)
Middletown—Schmitz, W. A. (L.)
Middleville—Crofts, J. L. (L.)
[illegible] F. (L.)
[illegible] F. J. (C.)
[illegible] E. C. (C.)
[illegible] A. H. (C.)
New York—Altman, S. (L.)
Anesh, A. (L.)
Arena, J. (L.)
Bell, W. W. (L.)
Bier, J. (L.)
Bostwick, W. W. (C.)
Brewer, G. E. (Col.)
Brooks, A. (L.)
Brunor, E. (C.)
Burstein, M. J. (C.)
Butterfield, P. M. (L.)
Cahill, G. F. (C.)
Chamberlain, W. C. (C.)
Cocks, G. H. (M.)
Coerr, F. H. (C.)
Cott, D. N. (L.)
Davis, E. (L.)
Dellett, A. P. (L.)
Dochez, A. R. (M.)
Douherty, J. M. (L.)
Dowd, C. N. (M.)
Eckardt, R. C. (L.)
Eckert, I. (L.)
Eisenbud, A. (L.)
Ernest, R. B., Jr. (L.)
Fagan, P. J. (L.)
Fitzgerald, J. P. (L.)
Fitzpatrick, C. B. (C.)
Flexner, S. (L. C.)
Foster, J. B. (L.)
Frankfeldt, F. M. (L.)
Fraser, J. F. (M.)
Frey, D. I. (L.)
Fuller, J. R. (L.)
Gates, F. L. (L.)
Gushee, E. S. (C.)
Hall, J. M. (L.)
Hall, J. S. K. (C.)
Hamlen, G. D. (M.)
Hammond, F. P. (C.)
Hannon, F. P. (L.)
Higgins, E. T. (C.)
Hirsch, I. S. (C.)
Hoguet, J. P. (C.)
Hollenbeck, L. L. (L.)
Holt, R. R. (C.)
Hood, R. B. (L.)
Howell, C. H. (C.)
Ingels, A. B. (L.)
Iovine, M. V. (L.)
Jenkins, P. B. (L.)
Kennedy, B. S. (L.)
Komaroff, H. M. (L.)
Korn, P. (L.)
Kraetzer, A. F. (L.)
Levy, A. B. (L.)
Levy, E. C. (M.)
Long, E. (C.)
Lurie, L. (L.)
MacDonald, J., Jr. (M.)
Manzella, F. A. (L.)
Margolies, A. L. (L.)
Maurer, G. E. (M.)
Maxwell, M. T. (L.)
Mayer, M. J. (L.)
McCready, R. L. (L.)
McEvoy, L. D. (M.)
McPhail, D. T. (C.)
Meierhof, H. L. (L.)
Michaels, L. (L.)
Miller, I. (L.)
Miller, M. A. (L.)
Nathan, P. W. (M.)
Neergard, A. E. (L.)
Nicholson, A. O. (L.)
Norton, G. E. G. (L.)
Olitsky, P. K. (L.)
Pearlman, L. M. (L.)
Pedersen, V. C. (M.)
Pidgeon, F. Z. (C.)
Poate, E. M. (L.)
Ramirez, M. A. (L.)
Rice, F. W. (L.)
Richards, A. C. (L.)
Ritchie, F. G. (M.)
Robins, B. L. (L.)
Rockwell, A. V. (L.)
Rohr, J. (L.)
Rosen, L. (L.)
Schleussner, R. C. (L.)
New York—Schmitt, A. H. (L.)
Schorr, H. E. (L.)
Schwartz, E. M. (L.)
Sheiffer, S. (L.)
Shiras, H. H. (L.)
Siegal, L. J. (L.)
Smith, J. S. (L.)
Sparks, W. R. (L.)
Sprout, L. E. (L.)
Steinbach, L. (L.)
Stillman, E. G. (L.)
Tenner, A. S. (C.)
Thomas, C. P. (L.)
Trachtenberg, I. (L.)
Vedder, H. A. (C.)
Vosburgh, A. S. (M.)
Weller, A. (L.)
White, F. W. (C.)
White, W. B. (C.)
Wolf, G. (C.)
Norwich—McNitt, H. W. (L.)
[illegible] S. W. (L.)
[illegible] W. (L.)
[illegible] (M.)
[illegible] J. C. (L.)
[illegible] (C.)
[illegible] (C.)
Flynn, J. C. (L.)
Fowler, W. F. (C.)
Goddard, F. H. (L.)
Imrie, G. T. (C.)
Laurence, R. V. (L.)
Maggio, C. (L.)
Paine, A. H. (L.)
Pfaff, N. J. (L.)
Sumner, C. (C.)
Sutherland, W. H. (C.)
Teresi, C. C. (L.)
Vary, H. J. (C.)
Whitney, G. C. (C.)
Wolin, D. (L.)
Romolus—Cole, T. F. (C.)
Rosebank—Wiggin, D. C. (M.)
Rye—Hogben, G. J. (L.)
Schenectady—Rosenberger, R. K. (L.)
Sidney—Young, P. S. (C.)
South Bethlehem—Augur, F. A (L.)
Springville—Stanbro, F. H. (L.)
Staten Island—Skidmore, E. L. (L.)
Wang, S. L. (L.)
Syracuse—Abbott, A. C. (L.)
Fowler, S. R. (C.)
McNerney, W. J. (L.)
Mellor, L. R. (C.)
Nolan, L. S. (L.)
Potter, C. F. (C.)
Ruland, A. S. (C.)
Wright, G. L. (L.)
Thiells—Storrs, H. C. (L.)
Troy—Barnes, J. A. (C.)
Utica—Campbell, G. B. (M.)
Warwick—Sly, J. L. (L.)
Watertown—Davidson, J. M. (C.)
Van Doren, G. B. (C.)
Watkins—Norman, N. P. (M.)
Waverly—Spencer, F. H. (M.)
Wayland—Richmond, A. E. (L.)
Westport—Battin, J. A. (M.)
White Plains—Overton, W. C. (L.)
Zacharie, C. C. (C.)

NORTH CAROLINA

Asheville—Scruggs, W. H. (C.)
Beaver Creek—Ray, R. C. (L.)
Belmont—Pressly, J. M. (C.)
Canton—Russell, J. M. (L.)
Charlotte—Bangle, J. A. (L.)
Clemmons—Hege, J. R. (L.)
Glen Alpine—Long, B. L. (L.)
High Point—Taylor, F. R. (L.)
Kinston—Hyatt, A. L. (L.)
La Grange—Pritchard, G. L. (L.)
Mount Airy—Rowe, H. B. (C.)
Mount Olive—Morris, G. B. (C.)
Raleigh—Gibson, M. R. (L.)
Rowland—Carmichael, T. W. (L.)
Vineland—Whitaker, R. B. (L.)
Warrenton—Rodgers, W. D. (L.)
Wilmington—Bolles, C. P. (C.)
LeGwin, J. B. (L.)
Winston Salem—Long, V. M. (C.)

NORTH DAKOTA

Bismarck—Mella, H. (L.)
Roan, M. W. (C.)
Schipfer, L. A. (L.)
Bowman—Whittemore, A. A. (C.)
Castleton—Baldwin, W. P. (C.)
Fargo—Oftedal, A. (L.)
Glen Ullin—Benson, O. T. (L.)
Grand Forks—Witherstine, W. H. (L.)
Harvey—Moore, W. H. (C.)
Jamestown—Shepard, G. P. (C.)
Noonan—Smith, J. A. (L.)
Wyndmere—Wilder, K. W. (L.)

OHIO

Akron—Bissell, F. C. (L.)
Kneale, W. E. (L.)
Steinke, C. R. (L.)
Albany—Stanley, E. I. (C.)
Alger—Elliott, R. A. (L.)
Ansonia—Stephen, C. I. (L.)
Antwerp—Moats, G. E. (L.)
Ashland—Meuser, C. B. (L.)
Ashley—Johnson, J. C. (L.)
Ashville—Stout, J. O. (L.)
Bay Village—Saddler, J. L. (L.)
Bryan—Brondo, P. H. (L.)
Burns, D. S. (L.)
Bucyrus—Kehrer, F. W. (L.)
Lingenfelter, C. A. (L.)
Schoolfield, E. R. (C.)
Caldwell—Cleary, R. H. (L.)
Cambridge—Neeland, H. R. (L.)
Canton—Cable, C. H. (L.)
Kaufman, V. E. (L.)
March, H. A. (L.)
O'Hara, J. F. (L.)
Shorb, T. H. (C.)
Carey—Spitler, T. A. (L.)
Celina—Otis, L. M. (L.)
Cheviot—McHenry, L. L. (L.)
Chillicothe—Friedlander, A. (M.)
Cincinnati—Beekley, C. J. (C.)
Conzett, J. J. (L.)
DeCourcy, C. W. (L.)
Devers, A. B. (L.)
Duffey, J. A. (L.)
Graf, W. J. (L.)
Iglauer, S. (C.)
Jacobs, W. G. (L.)
Kasting, R. W. (L.)
Kramer, F. F. (L.)
Kramer, S. P. (M.)
Lurie, L. A. (L.)
McKim, G. F. (C.)
Podesta, J. S. (L.)
Reed, R. W. (C.)
Simmons, R. W. (L.)
Smith, S. H. (C.)
Swing, F. U. (C.)
Urner, M. H. (C.)
Ware, H. J. (M.)
Wilms, J. H. (L.)
Cleveland—Austin, J. B. (C.)
Beels, R. J. (L.)
Black, J. A. (L.)
Bowers, C. A. (L.)
Crumrine, H. C. (C.)
Deacon, E. M. (L.)
Denison, T. A. B. (L.)
Dunbar, G. S. (L.)
Kintzler, L. C. (L.)
Kocinski, C. H. (L.)
Kuhlman, E. G. (L.)
MacLachlan, J. (C.)
Ochs, K. E. (L.)
Olsen, I. S. (L.)
Ravitz, L. R. (L.)
Riemenschneider, O. H. (L.)
Robertson, A. E. (L.)
Season, E. H. (C.)
Selman, D. (L.)
Seward, I. E. (C.)
Shirey, O. M. (C.)
Thompson, H. S. (L.)
Updegraff, R. K. (C.)
Wahl, H. R. (C.)
Williams, R. W. (M.)
Yoder, H. E. (L.)
Cleveland Heights—Hultenschmidt, W. J. (L.)
Columbus—Blakeley, H. B. (C.)
Bowman, J. M. (L.)
Brehm, G. W. (M.)
Brobst, J. W. (L.)
Coburn, E. E. (L.)
Herbst, E. (C.)
Howell, C. A. (C.)
Prushing, H. (L.)
Sanor, D. G. (C.)
Stevenson, R. B. (L.)
Tanner, C. (L.)
Warren, J. H. (L.)
Conneaut—Crandall, H. (L.)
Hurley, E. T. (L.)
Custer—Mannhardt, W. W. (L.)
Dayton—Meckstroth, H. L. (L.)
Walkup, T. (L.)
Wellbrook, G. H. (C.)
Dennison—Wilson, R. A. (M.)
Dover—Keller, W. R. (L.)
Dunkirk—Blosser, C. R. (L.)
Frankfort—Breyfogle, E. W. (L.)
Tinker, L. M. (C.)
Fredericksburg—Maxwell, G. F. (L.)
Fredericktown—Norrick, J. H. (L.)
Fulton—Leonard, E. L. (C.)
Girard—Hunt, F. C. (L.)
Hamilton—Burdsall, H. L. (C.)
Wilkinson, H. L. (L.)
Williams, C. A. S. (L.)
Hamler—Hissong, C. G. (L.)
Holgate—Earp, J. F. (L.)
Homer—Coburn, A. (L.)

Huron—Houghtaling, F. M. (L.)
Jackson—Harbarger, J. W. (C.)
Hunter, J. S. (L.)
Kenton—Bowman, D. H. (L.)
Johnson, B. L. (C.)
Kingston—Hatfield, C. C. (L.)
Lakewood—Anderson, A. W. (L.)
Lancaster—Silbaugh, J. J. (C.)
Latty—Mouser, R. H. (L.)
Lebanon—Blair, R. M. (L.)
Blair, W. E. (L.)
Leetonia—Travis, W. T. (L.)
Lima—Johnson, J. R. (L.)
Steiner, O. S. (C.)
London—Rosnagle, F. E. (L.)
Lorain—Adair, W. (L.)
Loveland—Coleman, J. M. (L.)
Marion—McMurray, J. W. (C.)
Martins Ferry—Woodruff, E. W. (L.)
Medina—Robinson, H. P. H. (C.)
Meeker—Field, F. F. (L.)
Middletown—Blood, H. I. (L.)
Montpelier—Wertz, H. W. (C.)
Napoleon—Quinn, T. (L.)
Rohrs, H. F. (L.)
National Military Home—Vega, J. J. (L.)
Nelsonville—Rhodes, W. S. (L.)
Welch, C. E. (C.)
New Canton—DeWitt, J. P. (C.)
Newcomerstown—Hays, S. B. (L.)
Newport—Gale, L. R. (L.)
Norwalk—Sipher, J. E. (L.)
Norwood—Schneider, E. B. (L.)
Wakeman, C. L. (L.)
Oakwood—Burson, A. F. (L.)
Orient—Nosker, R. W. (L.)
Perrysburg—Bowers, M. H. (L.)
Pierpont—Lewis, G. W. (L.)
Piqua—Yates, E. A. (L.)
Portsmouth—Braunlin, W. A. (L.)
Gault, W. E. (C.)
Schafer, W. D. (L.)
Prairie Depot—Whitacre, R. F. (L.)
Ravenna—Prichard, L. W. (C.)
Rittman—Alexander, E. R. (L.)
Sandusky—Liblicq, F. J. (L.)
Sowash, H. L. (L.)
Scott—Duckwall, F. C. (L.)
Shreve—Ice, K. C. (L.)
Sidney—Silver, A. (L.)
Springfield—Brubaker, E. R. (L.)
St. Mary's—Noble, W. A. (L.)
St. Paris—Hamsher, J. F. (L.)
Stony Ridge—Price, W. H. (C.)
Tiffin—Magers, V. L. (L.)
Toledo—Becker, K. C. (L.)
Burman, H. F. (L.)
Burritt, C. A. (C.)
Davis, J. R. (L.)
Dunlap, G. W. (L.)
Hartung, W. H. (L.)
Hasencamp, O. (C.)
Kern, P. E. (L.)
Kreft, F. G. (L.)
Mellott, E. R. (L.)
Morgan, H. J. (C.)
Pamment, H. G. (L.)
Parisen, G. B. (C.)
Wheeler, A. W. (C.)
Troy—Shinn, J. S. (L.)
Uhrichsville—Guthrie, G. C. (L.)
Upper Sandusky—Naus, W. L. (L.)
Valley City—Appleby, A. G. (M.)
Van Wert—Tuttle, S. S. (C.)
Versailles—Reprogle, E. G. (L.)
Robinson, F. J. (L.)
Warrensville — Bonsteel, E. O. (C.)
Washington Court House—Woodmanse, A. D. (L.)
West Unity—Critchfield, O. D. (L.)
Willard—Whisler, L. H. (L.)
Willow Wood—Burton, C. (L.)
Xenia—Messenger, H. C. (L.)
Youngstown—Lautenschlager, T. H. (L.)
Lewis, I. S., Jr. (L.)
Nagel, E. H. (L.)
Redd, W. C. (L.)
Riggs, R. W. (L.)
Zanesville—Gorrell, A. H. (C.)
McCormick, G. W. (L.)

OKLAHOMA

Altus—Landrum, S. H. (L.)
Bartlesville — Kingman, W. H. (L.)
Blanchard—Shi, T. P. (L.)
Bokohoma—Oliver, R. B. (L.)
Claremore—Lerskov, A. N. (L.)
Cleveland—Robinson, E. T. (L.)
Cloud Chief—Baker, B. W. (L.)
Coalgate—Sadler, F. E. (L.)
Collinsville—Hughes, L. (L.)
Cowlington—Conn, L. D. (L.)
Elk City—Rone, K. R. (C.)
Fairland—Smith, W. B. (L.)
Frederick—Gillis, J. A. (C.)
Grandfield—Wright, H. (L.)
Granite City—Luster, R. D. (L.)
Gray—Fewkes, J. M. (L.)
Guthrie—Rucks, W. W. (M.)
Haskell—Davis, E. (L.)
Indianola—Baker, J. H. (L.)
Laverne—Barber, J. J. (L.)
Marietta—Martin, A. E. (L.)
McAlester—Barton, V. H. (C.)
Wait, W. C. (L.)
Miami—Jacobs, J. C. (C.)
Woodcock, J. H. (C.)
Muskogee—Heitzman, C. W. (C.)
Nowata—Allen, R. I. (L.)
Oilton—Rutherford, B. C. (L.)
Okemah—Bloss, C. M. (L.)
Oklahoma City—Blesh, A. L. (M.)
Cloudman, H. H. (C.)
Guthrie, A. L. (C.)
Postelle, J. M. (C.)
Riely, L. A. (C.)
Sanger, F. M. (C.)
Pauls Valley—Spangler, A. S. (L.)
Pawhuska—Walker, R. (L.)
Pawnee—Wattoner, R. E. (L.)
Pond Creek—Enos, L. (L.)
Red Rock—Coldiron, D. F. (C.)
Sallisaw—Ferguson, J. B. (L.)
McKeel, S. A. (L.)
Shawnee—Scott, J. H. (C.)
Shrout, C. B. (L.)
Stigler—Hill, A. T. (C.)
Stillwell—Walters, C. A. (C.)
Sulphur—Bailey, H. C. (L.)
Salter, J. M. (C.)
Supply—Stecher, H. E. (L.)
Tulsa—Clement, W. R. (C.)
Price, H. P. (L.)
Yale—Stuck, L. A. (L.)

OREGON

Astoria—Finch, A. A. (M.)
Hot Lake—Phy, W. T. (C.)
La Grande—Hall, M. K. (C.)
Lebanon—Booth, J. C. (C.)
Miller, R. B. (L.)
Oregon City—Hempstead, W. E. (C.)
Welsh, O. A. (L.)
Portland—Anderson, W. R. (L.)
Hill, C. E. (C.)
Pease, G. N. (L.)
Sternberg, J. D. (C.)
Wetherbee, J. R. (M.)
White, C. S. (M.)
Springfield—Barr, J. R. (L.)

PENNSYLVANIA

Allentown—Reitz, C. B. (C.)
Allison—Frankenvurger, W. S. (L.)
Altoona—Walton, L. S. (C.)
Ashland—Roth, J. P. (L.)
Atglen—Baker, F. L. (C.)
Athens—Coon, C. M. (C.)
Cowell, E. M. (C.)
Bethlehem—Rauch, S. E. (L.)
Bellwood—Levengood, B. B. (L.)
Black Lick—Widdowson, W. C. (C.)
Blain—Woods, H. W. (L.)
Blairsville—Leonard, J. M. (L.)
Bloomsburg—Miller, R. E. (L.)
Bradford—Ash, G. G. (L.)
Butler—Ziegler, A. H. (L.)
Cannonsburg—Kelso, J. C. (L.)
Carbondale—Loftus, W. E. (L.)
Carlisle—Hudson, E. A. (L.)
Carnegie—Moore, J. E. (L.)
Carrollton—Mulvehill, V. J. (L.)
Charleroi—McKay, E. (M.)
Clairton—Norcross, C. B. (L.)
Cochranton—Imbrie, C. E. (C.)
Conneautville—Dickey, S. J. (L.)
Coraopolis—Braden, F. R. (L.)
Copper, J. S. (L.)
Cynwyd—Lueders, C. W. (C.)
Danville—Nebinger, R. (L.)
Dunlo—Livingston, W. W. (L.)
Easton—Correll, R. R. (L.)
McCormack, H. E. (L.)
Seipel, R. C. (L.)
Eldred—Eldred, E. M. (C.)
Erie—Jackson, J. D. (L.)
McCallum, M. J. (L.)
McNeill, C. A. (L.)
Farrell—Breene, L. N. (C.)
Franklin—Ashton, C. H. (L.)
Stone, H. S. (C.)
Germantown—Adams, A. M. (L.)
Collins, E. C. (L.)
Gettysburg—Craig, L. R. (C.)
Glen More—Johnson, J. H. (L.)
Glenshaw—Fausold, L. C. (C.)
Glenside—Huber, W. H. (L.)
Greenville — McElhaney, C. W (L.)
Harrisburg—Basler, W. J. (L.)
Dailey, G. L. (L.)
Harrisville—Duff, T. E. (L.)
Hazleton—Reiche, O. C. (L.)
Heckscherville — Sweeney, J. J. (L.)
Heilwood—Lyon, G. R. (L.)
Hollidaysburg—Calvin, W. (L.-C.)
Homer City—Palmer, M. M. (L.)
Homestead—Rinard, C. C. (C.)
Honesdale—Baer, J. A. (L.)
Hulmeville—Paxson, R. R. (C.)
Indiana—Davis, M. M. (L.)
Rink, C. E. (L.)
Jeannette—Halyama, G. E. (L.)
Reidt, U. H. (L.)
Johnsonburg—Sharp, E. B. (C.)
Johnstown—Gurley, L. M. (C.)
Kemblesville—Aaronoff, J. (L.)
Kingston—Jenkins, N. H. (L.)
Knoxville—Mayer, W. H. (L.)
Latrobe—Abbaticchio, N. E. (L.)
Leacock—Keylor, W. N. (C.)
Ligonier—Johnson, J. B. (C.)
Lilly—Dougherty, W. S. (L.)
Loganton—Mahr, I. O. (L.)
Ludlow—Young, R. L. (L.)
McKeesport—Evans ,E. E. (C.)
Jordan, S. S. (L.)
McKees Rock—Henney, P. J. (L.)
Meadville—Winslow, H. C. (L.)
Melroy—Kohler, W. H. (L.)
Mercer—Yeager, M. G. (C.)
Mercerburg—Nevin, B. E. (L.)
Merion—Watson, W. N. (L.)
Minersville — Monaghan, J. M. (L.)
Monesson—Herron, T. B. (L.)
Monongahela—Allen, J. H. (L.)
Warner, J. G. (L.)
Mount Carmell—Buckley, W. R. (L.)
Nanty Glo—McAnulty, A. H. (L.)
New Brighton—Pettler, S. H. (L.)
New Castle—Johnston, C. W. (L.)
New Kensington—Johnston, R. M. (L.)
Pessolano, F. J. (L.)
Piper, E. N. (L.)
New Ringgold—Bley, H. (L.)
Norwood Station—Harris, S. B. (C.)
Oakdale—Denny, C. B. (L.)
Oil City—Summerville, F. M. (C.)
Olyphant—Price, J. J. (L.)
Peckville—Armstrong, R. H. (L.)
Pen Argyl—Andrew, W. E. (L.)
Philadelphia—Baron, S. (L.)
Barry, W. D. (L.)
Davis, W. B. (C.)
Dubell, A. K. (L.)
Farr, C. B. (M.)
Gile, B. C. (M.)
Godfrey, H. G. (C.)
Hammond, F. C. (M.)
Hubbs, E. S. (L.)
Joseph, M. H. (L.)
Jungmann, J. D. (C.)
Knorr, J. K., Jr. (C.)
Kurz, K. J. (L.)
Leidy, J. (C.)
Leopold, H. P. (C.)
McConaghy, A. (M.)
Mirman, J. M. (L.)
O'Donnell, D. S. (L.)
Pancoast, C. S. (L.)
Pepper, W. (L. C.)
Perkins, J. A. (L.)
Platt, M. (L.)
Reimann, S. P. (L.)
Sampson, A. G. (L.)
Schofield, J. D. (L.)
Seiberling, J. D. (L.)
Shapiro, M. S. (L.)
Tegtmeier, C. E. (C.)
Vedder, C. V. B. (L.)
Weiss, W. (L.)
Williams, H. J. (L.)
Wilson, G. (L.)
Wilson, O. H. (L.)
Pittsburgh—Bianco, A. (L.)
Blough, R. E. (L.)
Boggs, D. A. (L.)
Bowman, C. L. (L.)
Bryant, W. C. (C.)
Clark, R. S. (L.)
Conway, J. M. (L.)
Crozier, A. W. (L.)
Cruikshank, O. T. (C.)
Donaldson, J. O. (L.)
Edmundson, F. B. (L.)
Ford, R. J. (L.)
Frishman, M. (L.)
Hensell, R. S. (C.)
Hodgkiss, J. (L.)
Kistler, J. D. (L.)
Kunkelman, D. R. (L.)
Kvatsak, J. J. (L.)
Lange, C. C. (L.)
Lebeau, S. I. (L.)
Leininger, C. P. (L.)
Litchfield, L. (M.)
McAdams, E. C. (L.)
McCullough, C. L. (L.)
Mitchell, L. M. (L.)
Pittsburgh—Salisbury, F. S. (L.)
Shaw, J. B. (L.)
Simpson, F. F. (L. C.)
Smith, H. P. (L.)
Stepp, L. L. (L.)
Stillwagon, C. A. (C.)
Sunseri, S. C. (L.)
Thompson, W. H. (L.)
Walker, G. H. (C.)
Wirts, C. W. (C.)
Pottsville—Moore, G. H. (L.)
Reading—Knoll, F. W. (L.)
Sondheim, S. J. (L.)
Wagner, J. L. (C.)
Yocom, C. A. (L.)
Reamstown—Russell, E. D. (L.)
Rochester—Yost, W. M. (L.)
Scranton—Brown, C. G. (C.)
Butzner, J. D. (C.)
Reed, H. R. (L.)
Stein, J. (C.)
Shamokin—Holt, L. M. (L.)
Simmons, R. H. (C.)
Sharon—Heilman, R. S. (L.)
Silver Creek—Flanigan, J. L. (L.)
Somerset—Louther, S. J. H. (C.)
South Bethlehem—Cathrall, W. J. (L.)
Stroudsburg—Levering, W. R. (L.)
Sugar Grove—Bradshaw, G. M. B. (L.)
Sunbury—McCay, R. B. (L.)
Uniontown—Boord, P. C. (L.)
Unionville—Klevan, O. J. (L.)
Vandergrift—Slagle, A. I. (L.)
Washington—Ruben, S. A. (L.)
Wattsburg—Fearn, J. W. (C.)
Weatherly—Freyman, I. E. (C.)
West Brownsville—Farquhar, H. L. (L.)
West Chester—Hemphill, J., Jr. (C.)
Webb, W. (C.)
West View—Torrens, A. E. (L.)
Whiteley—Core, A. R. (L.)
Wilkes-Barre—Dinkelspiel, M. R. (L.)
Shuman, G. A. (L.)
Wilkinsburg—Ellenberger, J. W. E. (L.)
Williamsburg—McGregor, W. J. (L.)
Windber—Benshoff, A. M. (L.)
York—Gilbert, I. (M.)
Miller, J. S. (L.)
Shatto, A. B. (C.)
Youngwood—Caven, A. H. (L.)

RHODE ISLAND

Pawtucket—O'Neill, J. B. (L.)
Phenix—Legris, L. J. A. (L.)
Providence—Collins, C. M. (L.)
Keefe, J. W. (M.)
McCarthy, J. M. (L.)
Street, W. W. (L.)
Whitmarsh, R. H. (C.)
Wyman, T. C. (L.)

SOUTH CAROLINA

Abbeville—Gambrell, C. C. (C.)
Blacksburg—Roberts, V. M. (L.)
Charleston—Boette, C. D. (L.)
Clinton—Davis, J. W. (C.)
Cliver—Campbell, I. J. (L.)
Columbia—Caughman, B. D. (L.)
Due West—Pressly, W. L. (L.)
Florence—Bramwell, J. M. (L.)
Georgetown—Brown, W. A. (L.)
Greenville—Tyler, G. T., Jr. (C.)
Monetta—Kneece, B. E. (L.)
Pickens—Valley, J. L. (C.)
Spartanburg—Clark, N. T. (L.)
Wilson, G. D. (C.)
Zimmerman, W. S. (C.)
St. Matthews—Symmes, T. H. (L.)

SOUTH DAKOTA

Aberdeen—Johnston, M. C. (C.)
Aurora—Foster, J. W. (L.)
Brookings—Green, B. T. (C.)
Doland—Williams, C. A. (L.)
Dupree—Creamer, F. H. (L.)
Hot Springs—Cornforth, H. H. (L.)
Lead—Jackson, A. S. (L.)
Miller—McWhorter, P. (L.)
Murdo—Hunt, W. M. (C.)
Nisland—Townsend, F. E. (L.)
Ree Heights—Paddleford, J. F. (L.)
Sioux Falls—Putnam, F. I. (L.)
Sturgis—Brackett, J. W. (C.)
Winifred—Barthell, J. F. (C.)

TENNESSEE

Alexander—Neil, J. B. (L.)
Aloka—Brown, G. B. (L.)
Beech Grove—Wysong, H. C. (L.)
Bristol—Bachman, H. W. (L.)
Camden—Smyth, J. M. (L.)

Chattanooga—Ellis, G. M. (M.)
Laws, H. A., Jr. (L.)
Patton, E. W. (L.)
Cleveland—Chambers, T. E. P. (C.)
[illegible] W. P. (L.)
[illegible]
[illegible] R. E. (L.)
[illegible] (L.)
[illegible] J. R. W. (C.)
Thomas, G. C. (L.)
Johnson City—Miller, H. D. (L.)
Knoxville—Carroll, H. L. (L.)
Copenhauer, M. M. (C.)
McMullen, L. S. (L.)
Patterson, R. W. (C.)
Rain, C. W. (L.)
Rogers, O. W. (L.)
Wickliffe, J. T. P. (L.)
Lewisburg—Hardison, J. A. (C.)
Martin—Stewart, J. M. (L.)
Memphis—Allen, C. A. (L.)
Andrews, J. L. (M.)
Blackwell, W. G. L. (L.)
Blecker, A. L. (L.)
Kaplan, M. (L.)
Mason, J. W. (L.)
Wood, P. H. (L.)
Milan—Clopton, A. T. (L.)
Millington—Ellison, H. L. (L.)
Mohawk—Dyer, L. E. (C.)
Nashville—Burch, L. F. (L. C.)
DeWitt, P. (C.)
Sanders, J. A. (L.)
Searight, M. W. (L.)
Thomason, C. F. (L.)
Wyatt, R. E. (L.)
Young, T. H. (L.)
Newbern—Turner, C. B. A. (L.)
Pleasant View—Woodruff, S. T. (L.)
Ripley—Sanford, W. V. (L.)
South Pittsburg—Anderson, S. N. (L.)
Stanton—Wilkerson, L. O. (L.)
Tate—Idol, J. H. (L.)
Union City—Blanton, M. A. (C.)
Loring, B. F. (L.)
Wartrace—Horton, G. E. (M.)
Washington College—Ruble, R. H. (L.)

TEXAS

Abilene—Hedrick, T. W. (L.)
Pickard, L. J. (C.)
Alpine—Middlebrook, J. R. (L.)
Appleby—Tindall, C. H. (L.)
Austin—Gill, J. M. F. (C.)
Weller, C. W. (L.)
Beeville—Bowman, N. H. (M.)
Belton—Crain, A. B. (C.)
Biardstown—Robinson, O. W. (L.)
Big Wells—Pickett, B. E. (L.)
Boyce—Jones, J. E. (L.)
Brandon—Smith, B. C. (L.)
[illegible] A. G. (L.)
[illegible] E. (L.)
[illegible] H. (L.)
Carthage—Baker, A. M. (L.)
Cisco—Griswold, G. W. (L.)
Coleman—Bailey, R. (C.)
Cotulla—Lightsey, J. N. (L.)
Dalhart—Tillotson, C. H. (L.)
Dallas—Boren, E. R. (L.)
Cowart, R. W. (L.)
Donald, H. (L.)
Millwee, R. H. (L.)
Watson, J. T. (C.)
Dickens—Blackwell, T. H. (L.)
Dodsonville—Beach, D. B. (L.)
Durango—King, F. B. (L.)
Eagle Ford—Sappinton, T. B. (L.)
Eagle Lake—Doole, T. P. (C.)
Elkhart—Hicks, J. H. (L.)
El Paso—Armistead, E. K. (L.)
Vance, J. (C.)
Witherspoon, L. G. (C.)
Flint—Doss, J. M. (L.)
Fort Worth—Hall, E. P. (C.)
Mackey, W. B. (C.)
Saunders, D. J. (L.)
Saunders, R. F. (M.)
Wilkins, H. F. (L.)
Gonzells—Stahl, L. J. (L.)
Graham—Padgett, W. O. (L.)
Grand Saline—Cozby, V. B. (L.)
Houston—Grimes, G. D. (C.)
Ralston, W. (M.)
Killeen—Ellis, J. W. (L.)
Klondike—Bradford, C. T. (L.)
Liberty Hill—Vaughan, J. H. (L.)
Lipscomb—Newland, C. A. (L.)
Lubbock—Hutchinson, J. T. (C.)
Lufkin—Gibson, B. F. (L.)
Marietta—Shaddix, J. W. (L.)
Marlin—Logsdon, W. K. (L.)
Shaw, F. H. (C.)
Streit, A. J. (L.)
Mexia—Jackson, A. A. (L.)
New Boston—Ball, S. C. (L.)
Odessa—Bell, M. C. (C.)
Pattonville—Biard, A. C. (L.)
Pearland—Long, W. E. (L.)
Plainview—Dawson, L. V. (L.)
Pleasanton—Atkinson, R. (L.)
Poolville—McConnell, J. A. (L.)
Port Arthur—Bledsoe, M. F. (C.)
Rockdale—Barkley, T. S. (L.)
Coulter, H. T. (L.)
San Antonio—Allis, F. A. (L.)
Herff, F. P. (C.)
Hirzel, W. C. (L.)
Parker, T. T. (L.)
Taylor, C. W. (C.)
Santa Anna—Ramsdell, M. A. (L.)
Savoy—Carter, C. S. (M.)
Sidney—Hays, P. G. (L.)
Sunset—Wright, E. W. (L.)
Sweetwater—Dupree, W. A. (L.)
Tahoka—McCoy, J. H. (L.)
Texarkana—Lanier, L. H. (L.)
Waco—Gage, S. C. (C.)
Lattimore, J. E. (L.)
Lovelace, C. (M.)
Smith, E. W. (L.)
Weatherford—Bunch, H. S. (C.)
Wellington—Jones, E. W. (L.)
Wills Point—Sanders, D. L. (C.)

UTAH

Salt Lake City—Crismon, K. A. (C.)
Ewing, W. B. (C.)
Irvine, A. R. (C.)
Maghee, G. H. (C.)
Neilson, C. J. (L.)

VERMONT

Burlington—Perkins, C. N. (L.)
Cambridge—Start, S. G. (C.)
Hartland—Ward, C. E. (L.)
Montgomery—Worden, R. D. (L.)
Montpelier—Parmenter, G. H. (L.)
Rutland—Hanrahan, H. H. (L.)
South Woodbury—Hall, G. G. (L.)
White River Junction—Drake, D. S. (L.)
Stanley, M. P. (L.)
Wilder—Goss, R. J. (L.)
Windsor—Miner, R. H. (C.)
Woodstock—Kidder, C. W. (L.)

VIRGINIA

Appalachia—Peters, W. B., Jr. (C.)
[illegible] B. (C.)
[illegible] (L.)
[illegible] A. (L.)
[illegible] W. N. (C.)
Heatsville—Rice, J. A. (C.)
Kerrs Creek—Obenschain, C. P (L.)
Lexington—White, R. (M.)
Louisa—Crum, J. H. (L.)
Lovington—Horsley, F. M. (L.)
Lynchburg—Walters, J. W. (C.)
Midland—Grant, J. L. (L.)
New Kent—Vaiden, J. B. (L.)
Newport News—Mabry, J. H. (L.)
Morewitz, T. D. (L.)
Willis, F. D. (L.)
Norfolk—Grant, H. C. (L.)
Gwathmey, L. (M.)
Pocahontas—Moore, J. H. (L.)
Purcellville—Thompson, R. M. (L.)
Raven—Weatherly, O. A. (L.)
Richmond—Foster, J. F. (L.)
Odeneal, T. H. (C.)
Williamson, W. F. (L.)
Roanoke—Maxwell, G. M. (C.)
Powell, W. L. (C.)
Topham, B. E. (L.)
Willis, J. D. (L.)
Salem—Kolmer, G. A. L. (L.)
Stewart—Divers, G. T. (L.)
Toms Brook—Stoneburner, R. W. (L.)
Waverly—Stoneham, H. G. (L.)

WASHINGTON

American Lake—Thiel, H. F. (L.)
Bellingham—Powell, I. W. (C.)
Enumclaw—Ulman, F. G. (C.)
Friday Harbor—Reed, C. O. (C.)
Montesano—Brachvogel, M. W. (C.)
Port Townsend—Simmons, W. R. (L.)
Puyallup—Runnalls, T. H. B. (L.)
Ronald—Rahal, C. G. (L.)
Seattle—Crimmins, P. P. (L.)
Long, L. D. (L.)
Sedro-Woolley—Harbaugh, C. C. (C.)
Spokane—Burger, T. D. (L.)
Laird, R. L. (L.)
Lawrence, E. J. (L.)
Wallace, J. E. (C.)
Sumas—Shryock, H. W. (L.)
Tacoma—McCreery, C. R. (C.)
Staatz, K. S. (C.)

WEST VIRGINIA

Camden—Greene, W. H. (C.)
Charleston—Amick, A. L. (L.)
Henson, E. B. (L.)
Romine, T. E. (L.)
Walker, R. H. (L.)
Clendenin—Smoot, E. W. (L.)
Dingess—Moore, J. M. (C.)
Elkins—Fredlock, A. M. (C.)
Henderson—Arnett, U. G. (C.)
Huntington—Marple, F. O. (L.)
Letark—Smith, D. V. (L.)
Lillybrook—Hoskins, J. H. (L.)
Masontown—Wichteman, E. J. (L.)
Morgantown—Fisher, R. W. (L.)
Moundsville—Morgan, C. G. (L.)
Nutter Fort—Riley, R. M. (L.)
Philippi—Williams, C. B. (C.)
Point Pleasant—McElfresh, E. L. (C.)
[illegible] W. D. (L.)
[illegible] V. (L.)
[illegible] W. L. Y. (L.)
Spencer—Parks, B. S. (L.)
Robertson, G. C. (L.)
Switzer—Davis, H. E. (L.)
Werrton—Makin, J. B. (L.)
Wheeling—Silver, H. (L.)
Vieweg, C. L. (C.)
Vieweg, M. W. (L.)
White Sulphur Springs—Wyatt, G. (L.)
Williamson—Salton, R. A. (L.)
Slayden, T. (C.)

WISCONSIN

Abrams—Faulds, R. C. (C.)
Cato—Gerend, A. J. (L.)
Chilton—Bolton, E. L. (C.)
Dallas—Wiger, H. C. (L.)
Eau Claire—Seemann, W. O. (C.)
Excelsior—Pippin, B. I. (L.)
Fond du Lac—Gavin, S. E. (M.)
Lawrence, S. H. (C.)
Gays Mills—Rice, H. A. (C.)
Green Bay—Gosin, D. F. (L.)
McNevins, E. S. (L.)
Janesville—Welch, F. B. (L.)
Kenosha—Murphy, S. W. (L.)
Kewaunee—Dishmaker, D. B. (L.)
Madison—Corlett, M. S. (L.)
Smith, K. W. (C.)
Manitowoc—Staehle, M. (C.)
Mason—Harrison, D. C. (C.)
[illegible] F. C. (L.)
[illegible] H. C. (L.)
[illegible] L.)
Forsbeck, F. A. (C.)
McLaughlin, F. H. (C.)
Mehigan, D. D. (L.)
Rigby, E. D. (C.)
Seeger, S. J. (L.)
Sutter, E. H. (L.)
Montello—Federman, E. H. (L.)
Oconto—Ouellette, C. J. (C.)
Oshkosh—Bunch, M. M. (L.)
Nims, C. H. (C.)
Platteville—Schuldt, C. M. (L.)
Richland Center—Benson, G. H. (C.)
McKee, F. W. (C.)
Sheboygan—Ryan, E. S. (L.)
Superior—Ground, W. E. (C.)
Thorp—Jackey, F. D. (C.)
Watertown—Ottow, A. F. W. (L.)
Waupun—Sleyster, L. R. (M.)
Wausau—Schlegel, H. T. (L.)
Wautoma—Cox, J. A. (L.)
Wauwatosa—Schoofs, O. P. (L.)

WYOMING

Cheyenne—Beard, C. Y. (L.)
Riverton—Tonkin, A. B. (C.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To East Norfolk, Mass., from Camp Jackson, Capt. T. LAWRENCE, Tuscaloosa.

To Jefferson Barracks, Mo., from Camp Sevier, Major H. B. WILKINSON, Montgomery.

To New Orleans, La., from Camp Gordon, Lieut. T. H. SUDDUTH, Garden City.

To South Baltimore, Md., from Fort Oglethorpe, Lieut. M. H. ESKEW, Selma.

Arizona

To Fort Sam Houston, Texas, base hospital, from Camp Travis, Capt. S. D. WHITING, Salt River.

Arkansas

To Baltimore, Md., from Camp Gordon, Capt. J. WILKINS, Hot Springs.

To Camp Travis, Texas, from Southern Department, Lieut. W. S. McCALL, Barfield.

To Fort Des Moines, Iowa, from Fort Logan H. Roots, Col. G. F. JUENEMANN.

To Newport News, Va., from Camp Dix, Capt. L. J. KOSMINSKY, Texarkana.

To Walter Reed General Hospital, D. C., for instruction, from Camp Lee, Capt. R. C. KORY, Little Rock.

California

To Camp Lee, Va., base hospital, from Walter Reed General Hospital, Capt. T. J. BERGGREN, Coronado.

To Camp Lewis, Wash., from Berkeley, Lieut. A. S. GOUGH, Los Angeles. Base hospital, from Fort McDowell, Lieut.-Col. H. H. SHARPE.

To Camp Travis, Texas, from Tucson, Lieut. O. C. HYDE, Lincoln.

To San Francisco, Calif., from Vancouver Barracks, Capt. J. C. GRAFFIN, Fallbrook. Letterman General Hospital, from Camp Fremont, Lieut. C. A. CRAIG, San Francisco; from Camp Lewis, Lieut. A. F. MAINE, Alameda.

The following order has been revoked: *To Fort Oglethorpe*, from Camp Crane, Lieut. A. L. COHN, San Francisco.

Colorado

To Denver, Colo., from New Haven, Lieut. E. D. DOWNING, Woodmen.

To Fort McHenry, Md., from Camp Wadsworth, Lieut. K. F. ROEHRIG, Denver.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut.-Col. G. B. WEBB, Colorado Springs.

Connecticut

To Camp Devens, Mass., from New Haven, Major M. C. WINTERNITZ, New Haven.

To Camp Meade, Md., base hospital, from the Surgeon-General's Office, Lieut. H. E. STEWART, New Haven.

To Chicago, Ill., from Boston, Major L. W. BACON, New Haven.

To Denver, Colo., from Vancouver Barracks, Major H. S. ARNOLD, New Haven.

To Fort Williams, Me., from Camp Dix, Capt. F. G. GOODRIDGE, Pomfret Center; Lieut. E. F. PERRY, Putnam.

To Washington, D. C., Surgeon-General's Office, from New Haven, Col. C. F. CRAIG.

Delaware

To Eastview, N. Y., from Camp Lee, Lieut. V. D. WASHBURN, Wilmington.

To Fort McHenry, Md., from Fort Sill, Capt. B. A. JENKINS, Wilmington.

District of Columbia

To Camp Grant, Ill., base hospital, from Rochester, Major J. B. PIGGOTT, Washington.

To Camp Meade, Md., to examine the command for nervous and mental diseases, from Camp Greene, Lieut. C. B. COVEY, Washington.

To Fort Snelling, Minn., from the Surgeon-General's Office, Lieut.-Col. E. R. GENTRY.

To Hoboken, N. J., from the Surgeon-General's Office, Lieut.-Col. F. H. GARRISON, Washington.

To New York, from Camp Meade, Capt. W. J. MANNING, Washington.

To San Francisco, Calif., Letterman General Hospital, as commandinig general, from the Surgeon-General's Office, Lieut.-Col. E. C. NORTHINGTON.

Florida

To Camp A. A. Humphreys, Va., as camp surgeon, from Camp Joseph E. Johnston, Lieut-Col. A. D. DAVIS.

To Camp Gordon, Ga., base hospital, from Camp Joseph E. Johnston, Lieut. C. A. PETERSON, Jacksonville.

To Camp Jackson, S. C., from Camp MacArthur, Capt. E. BLACKSHEAR, Citra.

To Fort Sheridan, Ill., from Fort Riley, Capt. H. C. DOZIER, Ocala.

Georgia

To Camp Abraham Eustis, Va., as camp surgeon, from Fort Oglethorpe, Lieut.-Col. T. J. FLYNN.

To Camp Beauregard, La., from Camp MacArthur, Lieut. S. E. BRAY, Savannah.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Lieut. K. E. FOSTER, College Park.

To Camp Travis, Texas, from Fort Sill, Capt. E. R. HARRIS, Bethlehem.

To Camp Zachary Taylor, Ky., from Camp Sherman, Capt. J. M. SIGMAN, Macon.

To Fort Oglethorpe, from Camp Forrest, Capt. W. E. McCURRY, Hartwell.

To Newport News, Va., from Fort McPherson, Lieut. C. H. DICKENS, Grayson.

To Philippine Islands, from Fort Oglethorpe, Capt. W. M. CAFFEE.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. R. DUCAT.

To Plattsburg Barracks, N. Y., from Fort Oglethorpe, Col. J. C. GREGORY, Capt. W. A. SHAW.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Rochester, Minn.*, for instruction, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. O. S. GILLILAND.

To Roland Park, Md., from Camp Joseph E. Johnston, Lieuts. S. M. HOWELL, Cartersville; J. M. BRYANT, Savannah.

To San Diego, Calif., Rockwell Field, as flight surgeon, from Sacramento, Capt. J. H. HALL, Atlanta.

To Walter Reed General Hospital, D. C., from Camp Jackson, Capt. W. C. PUMPELLY, Macon.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Capt. E. L. COOK.

Idaho

To Camp Dodge, Iowa, from Rochester, Minn., Lieut. E. W. FOX, Arco.

Illinois

To Boston, Mass., from New Haven, Lieut. I. PILOT, Chicago.

To Camp Dodge, Iowa, base hospital, from Camp Greene, Capt. E. D. WISE, Champaign.

To Camp Grant, Ill., base hospital, from Camp Sevier, Lieut. S. P. BLIM, Crete. *To examine the command* for cardiovascular diseases, from Camp Greene, Lieut. A. SUMMERS, Chicago.

To Camp Jackson, S. C., from Camp Sevier, Lieut. W. J. RILEY, Chicago.

To Camp Meade., Md., base hospital, Lieut. W. A. DANIELSON, La Grange.

To Camp Sherman, Ohio, base hospital, from Camp Shelby, Capt. J. A. KOCH, Quincy.

To Camp Travis, Texas, from Grand Forks, Lieut. J. H. McINTOSH, Chambersburg.

To Chicago, Ill., from Camp. A. A. Humphreys, Lieut. H. S. EDSON, Chicago; from Camp Sheridan, Lieut. M. F. McGUIRE, Chicago; from Fort Oglethorpe, Lieut. G. L. McWHORTER, Chicago.

To Fort Des Moines, Iowa, from Camp Shelby, Capt. W. A. PLICE, Chicago.

To Fort Sheridan, Ill., from Camp Jackson, Lieut. E. J. BERKHEISER, Aurora.

To Fort Snelling, Minn., from Camp Dodge, Capt. D. L. SCHRAM, Chicago.

To Fort Thomas, Ky., from Fort Des Moines, Lieut. M. O'HEARN, Chicago.

To Fort Warren, Mass., from Camp Zachary Taylor, Lieut. H. I. TWISS, Chicago.

To Jefferson Barracks, Mo., from Camp Grant, Capt. E. SARGENT, Moline.

To Lakewood, N. J., from the Surgeon-General's Office, Lieut. D. C. SUTTON, Chicago.

To Millington, Tenn., Park Field, as flight surgeon, from Americus, Capt. D. R. SCOTT, Macomb.

To Mineola, N. Y., Hazelhurst Field, from Millington, Capt. F. E. BRAWLEY, Chicago.

To Newport News, Va., from Oteen, N. C., Lieut. C. H. CONNOR, Chicago.

To Otisville, N. Y., from Camp Lee, Lieut. C. E. PITTE, Chicago.

To Pittsburgh, Pa., from Boston, Capt. B. H. MOORE, Chicago.

To Rockefeller Institute, from Camp Dix, Lieut. K. W. WAHLBERG, Moline. For instruction, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. W. S. CULPEPPER, St. Louis. For instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort Des Moines, Lieut. G. W. COX, Litchfield; from Fort Riley, Capt. W. H. PERRY, Sterling.

To San Antonio, Texas, Kelly Field, from Mineola, Capt. H. E. MIZE, Chicago.

To San Francisco, Calif., from Vancouver Barracks, Capt. R. B. MILLER, Rock Island.

To Washington, D. C., from Fort Oglethorpe, Col. C. H. S. WILLIAMSON, Chicago; from Rockefeller Institute, Capt. W. E. POTTER, Oak Park

The following order has been revoked: *To Fort Snelling, Minn.*, from Fort Sheridan, Lieut. H. B. THOMAS, Chicago.

Indiana

To Boston, Mass., from Camp Wadsworth, Lieut. M. B. GUTHRIE, Bedford.

To Camp Abraham Eustis, Va., base hospital, from Camp Joseph E. Johnston, Capt. B. VAN SWERINGEN, Fort Wayne.

To Camp Pike, Ark., from Camp MacArthur, Lieut. I. H. SONNE, Corydon.

To Camp Travis, Texas, from Fort Des Moines, Capt. L. Z. BREAKS, Terre Haute.

To Chicago, Ill., from Camp Sherman, Capt. J. R. GILLUM, Terre Haute.

To Fort Bayard, N. H., from Camp Hancock, Capt. N. W. CLARK, Rossville.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. H. E. STEINMAN, Monroeville.

Iowa

To Army Medical School, from Camp Dix, Capt. W. F. CARVER, Fort Dodge.

To Boston, Mass., from Camp Devens, Lieut. J. M. MANSFIELD, Iowa City.

To Camp Beauregard, La., base hospital, from Camp Wheeler, Capt. H. R. REYNOLDS, Clinton.

To Camp Devens, Mass., base hospital, from New Haven, Major G. McCONNELL, Waterloo.

To Camp Travis, Texas, from Camp Cody, Lieut. W. P. SHERLOCK, Keokuk.

To Fort Rosecrans, Calif., from Vancouver Barracks, Lieut. E. E. RICHARDSON, Webster City.

To Key West Barracks, Fla., from Camp Meade, Capt. E. A. BARE, Pleasantville.

To report to the Commanding General, Western Department, from San Francisco, Major A. V. HENNESSY, Council Bluffs.

Kansas

To Chicago, Ill., from Camp Douge, Capt. C. A. PARKER, Maize.

To Eastview, N. Y., from Camp Pike, Lieut. G. A. KING, Maplehill.

The following order has been revoked: *To Fort Riley*, base hospital, from Camp Devens, Capt. D. I. MAGGARD, Wichita.

Kentucky

To Camp Lee, Va., from Camp Zachary Taylor, Major F. H. MILLS.

To Chicago, Ill., from Fort Wayne, Lieut. A. V. JONES, Louisville.

The following order has been revoked: *To Carlisle, Pa.*, from Camp Knox, Lieut. P. K. SAUER.

Louisiana

To Camp Bowie, Texas, as tuberculosis examiner, from Camp McClellan, Lieut. B. R. HENINGER, New Orleans.

To Camp Logan, Texas, from Camp Shelby, Lieut. M. J. GELPI, New Orleans.

Maine

To Carlisle, Pa., from Army Medical School, Capt. R. V. BLISS, Bangor.

Maryland

To Army Medical School from Camp Dix, Lieuts. W. H. JENKINS, D. SILBERMAN, Baltimore.

To Camp A. A. Humphreys, Va., as camp surgeon, from Camp Meade, Lieut.-Col. G. L. QUALLS.

To Camp Gordon, Ga., base hospital, from Camp Joseph E. Johnston, Capt. T. P. SPRUNT, Baltimore.

To Camp Greene, N. C., base hospital, from Camp Wadsworth, Lieut. V. L. MAHONEY, Catonsville.

To Camp Lee, Va., base hospital, from Camp Meade, Lieut. G. R. MICKLETWAITE, Baltimore.

To Camp McClellan, Ala., to examine the command for nervous and mental diseases, from Camp Forrest, Lieut. F. N. OGDEN, Baltimore.

To Fort Meyer, Va., from Camp Meade, Capt. C. W. WEST, Baltimore.

To Fort Oglethorpe, from Camp Greene, Lieut. M. RASKIN, Baltimore.

To Fort Porter, N. Y., from Camp Custer, Lieut. H. G. JOHNSON, Baltimore.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort Des Moines, Lieut. T. S. MOISE, Baltimore.

The following order has been revoked: *To Fort Snelling, Minn.*, from Cape May, Lieut. J. H. BAIRD, Baltimore.

Massachusetts

To Army Medical School, from Plattsburg Barracks, Lieut. M. B. RADDING, Springfield. For instruction, from Camp Abraham Eustis, Major E. A. CODMAN, Boston.

To Biltmore, N. C., from Camp Wadsworth, Lieut. L. C. HAVENS, Cambridge.

To Camp Amatol, N. J., from Army Medical School, Lieut. J. E. DEMPSEY, Newton.

To Camp Logan, Texas, base hospital, from Camp Wheeler, Capt. R. B. OBER, Springfield.

To Camp Meade, Md., base hospital, from Fort Myer, Lieut. H. W. ELLAM, Gardner. *To examine the command* for nervous and mental diseases, from Camp Greene, Lieut. F. P. MOORE, East Norfolk.

To Camp Sevier, S. C., to examine the command for nervous and mental diseases, from Fort McHenry, Lieut. D. B. COLEMAN, Wellesley.

To Camp Zachary Taylor, Ky., base hospital, from Army Medical School, Major E. A. CODMAN, Boston.

To Detroit, Mich., from Boston, Lieut. T. S. MEBANS.

To Eastview, N. Y., from Fort Oglethorpe, Lieut. G. L. CHAFFIN, Boston.

To Fort Benjamin Harrison, Ind., from Hoboken, Lieut. W. A. MacINTYRE, Worcester.

To Fort McPherson, Ga., from Fort Sam Houston, Lieut. C. W. FINNERTY, Sommerville.

To Garden City, N. Y., from Mineola, Lieut. T. F. CAPELES, Haverhill.

To Governors Island, N. Y., from Boston, Major F. R. ILSLEY, Medford.

To Markleton, Pa., from Fort Thomas, Lieut. H. M. STEWART, Pittsfield.

To Mineola, N. Y., Hazelhurst Field, as flight surgeon, from Long Island, Lieut. L. R. BURNETT, Cambridge.

To Oteen, N. C., from Camp Sevier, Lieut. N. J. HEYWOOD, Williamsett.

To Plattsburg Barracks, N. Y., from Camp Greene, Capt. H. L. STICK, Baldwinsville.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major F. W. PEABODY, Boston.

The following order has been revoked: *To Fort Ontario, N. Y.*, Major R. J. R. CAINES, Boston.

Michigan

To Arcadia, Calif., Army Balloon School, from San Diego, Major H. S. BARTHOLOMEW, Lansing.

To Camp Travis, Texas, from Fort Crook, Lieut. R. R. ENSOR, Detroit.

To Detroit, Mich., from Walter Reed General Hospital, Lieut. F. H. COLE, Detroit.

To Fort Oglethorpe, from Camp Forrest, Major H. L. ARNOLD, Owosso.

To Fort Sam Houston, Texas, to examine the command for nervous and mental diseases, from Fort Riley, Lieut. H. P. GOTFREDSEN, Lowell.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Detroit, Mich.*, from Fort Oglethorpe, Lieut. J. W. WARREN, Detroit.

Minnesota

To Camp Grant, Ill., as orthopedic surgeon, from Fort Snelling, Lieut. E. O. SWANSON, St. Paul. Base hospital, from Camp Dodge, Capt. A. H. PARKS, Minneapolis.

To Camp Lee, Va., base hospital, from Camp Zachary Taylor, Capt. C. A. LESTER, Winona.

To Camp McClellan, Ala., base hospital, from Camp Jackson, Capt. G. B. EUSTERMAN, Rochester.

To Camp Travis, Texas, from Fort Omaha, Lieut. K. DEDOLPH, St. Paul.

To Fort Snelling, Minn., from Boston, Lieut. M. A. DESMOND, [illegible]

[illegible] have been revoked: *To Fort Des Moines, Iowa*, [illegible]W, Rochester; from Rockefeller Institute, Lieut. J. R. McVAY, Rochester.

Mississippi

To Camp McClellan, Ala., base hospital, from Camp Shelby, Lieut. C. E. MULLENS, Natchez.

To Fort McHenry, Md., from Camp Sherman, Lieut. D. C. MONTGOMERY, Greenville.

To Newport News, Va., from Fort Oglethorpe, Lieut. H. E. GRIFFIN, Coffeeville.

Missouri

To Aberdeen, Md., from Cincinnati, Capt. J. MIDDLETON, Kansas City.

To Army Medical School, from Camp Dix, Lieut. R. JOHNSON, St. Louis.

To Camp Dodge, Iowa, base hospital, from Rockefeller Institute, Lieut. J. C. DONAHUE, St. Louis.

To Camp Grant, Ill., base hospital, from Camp Zachary Taylor, Capt. W. H. GENTRY, Carthage.

To Camp Meade, Md., to examine the command for nervous and mental diseases, from Plattsburg Barracks, Lieut. J. F. McFADDEN, St. Louis.

To Camp Travis, Texas, from Fort Omaha, Lieut. H. H. HUGHART, St. Louis.

To Chicago, Ill., from Camp Dodge, Capt. P. S. TATE, Farmington; H. L. MONTAGUE, St. Louis.

To Fort Riley, from Camp Dix, Lieut. G. G. KAEMMERLING, Joplin.

To Fort Sheridan, Ill., from Camp Dodge, Lieut. E. E. HEIN, St. Louis.

To Hoboken, N. J., from Fort Sill, Lieut. L. SANTE, St. Louis.

To Jefferson Barracks, Mo., from Camp Kearney, Lieut.-Col. M. P. RAVENAL, Columbia.

To Madison Barracks, N. Y., from Rockefeller Institute, Capt. J. M. DEAN, St. Louis.

To Newport News, Va., from Biltmore, Capt. C. R. BUREN, Princeton.

To Plattsburg Barracks, N. Y., from Madison Barracks, Major G. E. SCRUTCHFIELD, Marshall.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Jefferson Barracks, Mo.*, from Fort Riley, Lieut. J. H. ARMSTRONG, Glendale.

Montana

To Fort Snelling, Minn., from St. Paul, Capt. P. L. ASHLEY, Wibaux.

Nebraska

To Army Medical School, from Camp Dix, Capt. A. D. MUNGER, Lincoln.

To Camp Travis, Texas, from Fort Sill, Capt. C. MINNICK, Curtis.

New Hampshire

To Boston, Mass., from Fort Oglethorpe, Major J. A. DREW, Rumney.

To Camp Lee, Va., base hospital, from Camp Sheridan, Lieut. D. L. BLACK, Nashua.

To Fort Williams, Me., from Camp Dix, Capts. G. D. TIBBETTS, Bennington; B. P. BURPEE, Manchester.

New Jersey

To Biltmore, N. C., from Camp Dodge, Lieut. B. M. HANCE, [illegible]

To Boston, Mass., from Fort Oglethorpe, Lieut. J. H. WHITICAR, Ocean City.

To Camp Devens, Mass., from Watertown Arsenal, Capt. G. B. VERBECK, Caldwell.

To Camp Dix, N. J., from Camp Jackson, Lieut. W. F. COSTELLO, Dover.

To Camp Dodge, Iowa, base hospital, from Camp McClellan, Lieut. J. S. MARK, Chrome.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Capt. N. W. CURRIE, Plainfield.

To Oteen, N. C., from Camp Sevier, Lieut. E. N. COWAN, Merchantsville.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major S. PATON, Princeton.

The following order has been revoked: *To Madison Barracks, N. Y.*, from Pittsburgh, Capt. R. D. BAKER, Summit.

New Mexico

To Denver, Colo., from Camp Dodge, Capt. B. E. HEDDING, Santa Fe.

New York

To Arcadia, Fla., Dorr Field, from St. Paul, Capt. E. C. LYON, New York.

To Army Medical School, for instruction, from Hoboken, Capt. J. L. DONHAUSER, Albany.

To Biltmore, N. C., from Rockefeller Institute, Col. A. E. BRADLEY.

To Boston, Mass., from Fort Oglethorpe, Lieut. R. L. CUDLIPP, New York.

To Butte, Mont., from Detroit, Capt. E. E. GILLICK, Niagara Falls.

To Camp Dix, N. J., base hospital, from Camp Hancock, Lieut. J. GOLOMB, New York.

To Camp Forrest, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. S. BRODY, New York.

To Camp Grant, Ill., to examine the command for cardiovascular diseases, from Camp Greene, Lieut. W. B. HUNTLEY, New York.

To Camp Lee, Va., base hospital, from Camp Sevier, Lieut. W. W. TRACEY, New York.

To Camp Meade, Md., as orthopedic surgeon, from the Surgeon-General's Office, Major A. H. PARSONS, Great Neck.

To Camp Shelby, Miss., base hospital, from Camp Jackson, Capt. E. A. STAPLETON, Albany.

To Camp Upton, N. Y., base hospital, from Edgewood, Md., Capt. J. H. McCORT, Sag Harbor; *from Fort Oglethorpe*, Major K. F. RUBERT, Owego.

To Camp Wheeler, Ga., base hospital, from Camp Hancock, Lieut. J. E. WINDBIEL, Amsterdam.

To Carlisle, Pa., from Camp Sevier, Capt. C. A. LUBRECHT, Brooklyn.

To East Norfolk, Mass., from Camp Joseph E. Johnston, Capt. E. C. GILBERT, Bridgehampton; from New Haven, Lieut. S. KOROWITZ, New York.

To Eastview, N. Y., from Otisville, Capt. C. R. BAKER, Kingston.

To Everman, Texas, *Barron Field, from* Lonoke, Major S. M. STRONG, New York.

To Fort Logan H. Roots, Ark., from Camp Gordon, Capt. C. H. SANFORD, New York.

To Fort McHenry, Md., from Camp Dix, Capt. G. H. CROT, New York; from Fort Oglethorpe, Capt. J. H. KEVAND, Syracuse.

To Fort Ontario, N. Y., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. V. J. JACOBSON, Mineola.

To Fort Porter, N. Y., from Rochester, N. Y., Capt. W. B. JONES, Rochester.

To Fort Sam Houston, Texas, base hospital, from Camp McClellan, Capt. S. ERDMAN, New York.

To Fort Sheridan, Ill., from Camp Crane, Lieut. R. W. MOODY, Middletown; from Lakewood, Lieut. H. T. HYMAN, New York.

To Fort Sill, Okla., from Camp Joseph E. Johnston, Lieut. M. B. SHARKEY, Syracuse.

To Fort Warren, Mass., from Camp Dix, Major H. D. COCHRANE, Albany; Capt. G. F. CAHILL, New York.

To Fort Wayne, Mich., from Fort Omaha, Capt. M. R. WALTER, New York.

To Garden City, N. Y., from Wichita Falls, Capt. S. A. MUNFORD, Ithaca.

To Hoboken, N. J., from Camp Dix, Capt. H. S. PASCAL, New York; from Camp Sevier, Lieut. J. E. SHORT, Buffalo.

To Long Beach, N. Y., from Fort Ontario, Lieut. S. TRIPLER, Oswego.

To New Haven, Conn., from Fort Oglethorpe, Lieut. W. M. O'CONNELL, New York.

To Newport News, Va., from Biltmore, N. C., Lieut. R. S. BREAKEY, Monticello.

To Norfolk, Va., from Fort Oglethorpe, Capt. E. J. PHILLIPS, Corfu.

To Oteen, N. C., from Camp Sevier, Lieut. B. C. BULLEN, New York.

To Otisville, N. Y., from Camp Abraham Eustis, Capt. F. ARGUS, Buffalo; from Camp Zachary Taylor, Lieut. M. A. SAGER, New York.

To Pittsburgh, Pa., from Camp Sheridan, Capt. L. M. WILBOR, Jasper.

To [illegible] Mayo Clinic, for instruction, from Camp Crane, Capt. [illegible]ingville.

To [illegible] for instruction in the treatment of infected wounds [illegible] *to Rochester, Minn.*, Mayo Clinic, for instruction, from Williamsbridge, Major D. L. WINN.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. E. S. AMSLER, Rochester.

To Washington, D. C., *Surgeon-General's Office, from* Colonia, N. J., Capt. W. H. VEEDER, Rochester; from Hoboken, Lieut.-Col. A. E. COHN, New York. On completion *to Camp Lee, Va.*, base hospital, from Camp Meade, Capt. E. W. BROWN, Mount Kisco.

To West Baden, Ind., from Otisville, Lieut. L. SASOVER, New York.

[illegible], N. Y., from Army Medical School, Lieut. H. T. [illegible] York.

[illegible]rs have been revoked: *To Camp Meade, Md.*, from Fort Oglethorpe, Capt. C. POTTER, Syracuse. *To Camp Shelby, Miss.*, base hospital, from Camp Wheeler, Lieut. L. M. KELLEY, Manchester Center. *To Fort Oglethorpe*, from Camp Crane, Major J. E. CONBOY, New York.

North Carolina

To Camp Gordon, Ga., base hospital, from Camp Joseph E. Johnston, Lieut. C. M. VAN POOLE, Salisbury.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. A. C. CAMPBELL, Raleigh.

To Camp Lee, Va., from Camp Greene, Major G. C. BEACH, JR.

To Fort Oglethorpe, from Camp Forrest, Capt. L. H. WEBB, Chapel Hill.

To Oteen, N. C., from Otisville, Lieut. J. W. WILLCOX, Laurel Hill.

To Washington, D. C., from Camp Sevier, Lieut.-Col. B. R. HUNTER, Charlotte. Surgeon-General's Office, for instruction, from Camp Dix, Capt. C. W. BANNER, Greensboro.

Ohio

To Aberdeen, Md., from Camp Joseph E. Johnston, Lieut. W. N. TAYLOR, Columbus; from Camp Meade, Capt. S. A. EDWARDS, Middlepoint.

To Camp A. A. Humphreys, Va., base hospital, from Camp Greene, Capt. H. S. HAYES, Whitehouse.

To Camp Dodge, Iowa, from Camp MacArthur, Lieut. A. V. SIBERT, Lima.

To Camp Meade, Md., base hospital, from Camp Sherman, Major R. H. BIRGE, Cleveland.

To Camp Travis, Texas, from Fort Sill, Lieut. A. J. SHOEMAKER, Columbus; from San Antonio, Lieut. J. M. PUMPHREY, Mount Vernon.

To Carlisle, Pa., from Fort Sheridan, Lieut. R. E. STEPFIELD, Barberton.

To Chicago, Ill., from Fort Wayne, Mich., Lieut. L. C. NEISWANDER, Ada.

To Dayton, Ohio, McCook Field, *from Belleville, Capt.* C. O. BAYLFSS, Dayton.

To Detroit, Mich., from Camp Zachary Taylor, Lieut. J. H. CHALAT, Cleveland.

To Eastview, N. Y., from Camp Grant, Capt. W. A. MEDLIN, Cleveland

To Erie Proving Ground, Ohio, from Detroit, Lieut. E. SHELDON, Bloomdale.

To Fort McHenry, Md., Major G. C. SCHAEFFER, Columbus; *from* Camp Sevier, Capt. S. W. EVANS, Cleveland

To Newport News, Va., from Biltmore, N. C., Capt. H. J. AUSTIN, Geneva.

To Otisville, N. Y., from Camp Grant, Capt. J. M. ULRICH, Akron.

To Penniman, Va., from Camp Lee, Lieut. L. V. BATES, Columbus.

To Pittsburgh, Pa., from Camp Sheridan, Capt. H. M. TARR, Cleveland.

To Washington, D. C., Surgeon-General's Office, from Camp Greene, Capt. H. B. BLAKEY, Columbus.

The following orders have been revoked: *To Dansville, N. Y.*, from Fort Oglethorpe, Lieut. J. R. CRAWLEY, Athens. *To Fort Leavenworth, Kan.*, from Fort Oglethorpe, Lieut. W. H. VORBAU, Lima.

Oklahoma

To Army Medical School, from Camp Dix, Capt. E. E. RICE, Shawnee.

To Camp Travis, Texas, from Camp Bowie, Capt. P. GARDNER, Haileyville.

To Fort Leavenworth, Kan., from Fort Riley, Lieut. H. M. REEDER, Shawnee.

To Fort Oglethorpe, from Camp Forrest, Lieut. L. A. MITCHELL, Frederick.

Oregon

To Fort McDowell, Calif., from Fort Oglethorpe, Capt. W. C. MUNLY, Portland.

To Fort McHenry, Md., Major J. M. WAUGH, Hood River.

To San Francisco, Calif., from Vancouver Barracks, Capt. E. MINGUS, Marshfield.

Pennsylvania

To Army Medical School from Camp Dix, Capt. J. D. LEWIS, Scranton; Lieut. R. H. JEFFREY, Uniontown.

To Camp Custer, Mich., from Detroit, Lieut. R. W. WATTERSON, Darlington.

To Camp Devens, Mass., from New Haven, *Capt.* J. LEIDY, Philadelphia. Base hospital, from Camp Wadsworth, Lieut. R. H. PEARLMAN, Pittsburgh.

To Camp Dix, N. J., Lieut. J. H. McCUTCHEON, Philadelphia.

To Camp Grant, Ill., base hospital, *from* Detroit, Capt. A. R. MATHENY, Pittsburgh.

To Camp Jackson, S. C., from Camp Sevier, Major A. E. DAVIS, Scranton.

To Camp Leach, D. C., from Army Medical School, Lieut. D. B. COOLEY, Pottstown.

To Camp Meade, Md., base *hospital*, from Fort Sheridan, Lieut. F. J. GABE, Reading. *To* examine the command for nervous and mental diseases, from Dansville, N. Y., Lieut. J. P. BOYLE, Philadelphia.

To Camp Sevier, S. C., base *hospital*, from Fort Oglethorpe, Lieut. H. G. CARMALT, Pittsburgh.

To Camp Travis, Texas, from Camp Wadsworth, Capt. E. H. SLOAN, Ben Avon; from San Antonio, Capt. W. S. SHIMER, Philadelphia.

To Cape May, N. J., from Camp Lee, Lieut. E. P. LONGAKER, Philadelphia.

To Detroit, Mich., *from* Fort McHenry, Major G. C. BOUGHTON, Erie.

To Fort McHenry, Md., *from* Camp Sheridan, Lieut. P. C. EISMAN, Philadelphia; from Camp Wheeler, Capt. C. B. NOECKER, Scranton.

To Fort Oglethorpe, from Camp Forrest, Major C. M. STROTZ, Philadelphia.

To Fort Riley, base hospital, from Camp Zachary Taylor, Lieut. J. E. GROSS, *Pittsburgh*.

To Hoboken, N. J., from Long Beach, N. Y., Lieut. D. L. SIMON, Pittsburgh.

To Newport News, Va., from Biltmore, N. C., Lieut. M. B. BERNARD, Philadelphia; from Camp Jackson, Capt. S. A. METHENY, Philadelphia; from Fort McPherson, Lieut. W. S. BELL, Greensburg; from Fort Oglethorpe, Lieut. R. L. ELLIS, York.

To San Diego, Calif., Rockwell Field, from Camp Polk, Major A. W. YALE, Philadelphia.

To Walter Reed General Hospital, D. C., from Colonia, Lieut.-Col. A. P. C. ASHHURST, Philadelphia; from Fort *Oglethorpe*, Lieut. W. C. SHEEHAN, Erdenheim.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Lieut.-Col. W. F. MANGES, Philadelphia.

To Waynesville, N. C., from Camp Meade, Capt. A. TRASOFF, [illegible]

[illegible]s been revoked: *To Fort Hancock, Ga.*, from [illegible] Capt. E. H. PERRY, Washington.

Rhode Island

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. P. APPLETON, Providence.

South Carolina

To Fort McHenry, Md., from Fort Oglethorpe, Capt. C. M. RAKESTRAW, Rock Hill.

South Dakota

To Fort Snelling, Minn., from Camp Dix, Capt. W. D. FARRELL, Aberdeen; from Camp Joseph E. Johnston, Lieut. L. J. BROOKMAN, Vermilion.

To San Francisco, Calif., from Vancouver Barracks, Lieut. F. T. READ, South Shore.

Tennessee

To Army Medical School, from Camp Forrest, Lieut. E. L. HOOPER, Cordova.

To Camp Meade, Md., base hospital, from Dansville, Lieut. R. H. DENHAM, Lynnville.

To Camp Upton, N. Y., base hospital, from Camp Sevier, Lieut. C. P. WALLER, Woodbine.

To Fort Dade, Fla., from Camp John Wise, Lieut. F. J. O'CONNOR, Jackson.

To San Francisco, Calif., from Vancouver Barracks, Lieut. H. W. ALLAN, Knoxville.

The following order has been revoked: *To Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. B. L. JACOBS, Chattanooga.

Texas

To Camp Gordon, Ga., from Camp Wheeler, Capt. S. L. BOREN, Del Rio.

To Camp Grant, Ill., base hospital, from Camp Logan, Lieut. E. R. EASTON.

To Camp Logan, Texas, from Camp MacArthur, Major H. C. BIFRROWER.

To Camp Travis, Texas, from Camp Bowie, Capts. T. R. BURNETT, *Carrollton*; C. D. DIXON, San Antonio; from Camp Devens, Capt. B. F. STEVENS, El Paso.

To Camp Upton, N. Y., base hospital, from Camp Sevier, Lieut. C. P. WALLER, Woodbine.

To Denver, Colo., from Camp Abraham Eustis, Lieut. R. K. STACEY, Minerva.

To Fort Logan H. Roots, Ark., from Camp Logan, Lieut.-Col. C. M. WALSON.

To Fort McHenry, Md., *from* Camp Joseph E. Johnston, Major G. HAMILTON, Houston.

To Fort Sam Houston, Texas, *from Camp* Meade, Capt. H. D. WHITTINGTON, Eastland. Base *hospital*, *from* Camp *Travis*, *Capt.* W. W. SAMUELL, Dallas; from Rockefeller Institute, Lieut. M. S. SEELY, Wortham.

To Jefferson Barracks, Mo., from Camp Zachary Taylor, *Major* A. C. McDANIEL, San Antonio.

To Newport News, Va., from Fort McPherson, Lieut. J. W. MACUNE, Davilla.

To Waynesville, N. C., from Fort Oglethorpe, Lieut. W. C. COLBERT, Chicota.

Utah

To Fort Des Moines, Iowa, from Fort Riley, Lieut. F. F. HATCH, Salt Lake City.

To Fort Douglas, from Camp Sevier, *Lieut.* G. A. LIGHT, Salt Lake City; from Fort Logan, Capt. G. W. CLARKE, Springville.

To Long Beach, N. Y., from Fort Riley, Capt. H. B. FORBES, Ogden.

Virginia

To Camp Lee, Va., base hospital, from Camp Devens, Lieut. J. W. DEVINE, Lynchburg.

To Cape May, N. J., from the Surgeon-General's Office, Major C. C. COLEMAN, Richmond.

To Fort Monroe, Va., from Camp Dix, Major B. HILLSMAN, Richmond.

To Fort Warren, Mass., from Camp Lee, Lieut. W. COX, *Win*chester.

Washington

To Camp Lewis, Wash., from Vancouver Barracks, Capt. C. C. BENEDICT, Seattle.

To Camp Travis, Texas, from Chicago, *Lieut.* H. MARTIN, Cashmere.

To Vancouver Barracks, Wash., from Camp Lewis, Lieut. L. S. DEWEY, Okamogan.

West Virginia

To Newport News, Va., from Biltmore, N. C., Lieut. J. A. BAKER, *Shirley*.

The following order has been revoked: *To Army Medical School* for instruction, from Camp Grant, Lieut. L. E. DAUGHERTY, Davis.

Wisconsin

To Aberdeen, Md., from *Lee Hall*, Va., Lieut. E. C. PFEIFER, Sheyboggan Falls.

[illegible], from Camp MacArthur, Lieut. W. T. [illegible] Oglethorpe, Lieut H. O. JONES, Denison.

To Fort Biscum, Alaska, from Fort Riley, Lieut. R. F. FITCH, Tomah.

To San Francisco, Calif., from Vancouver Barracks, Capt. H. A. FULTON, Eau Clair.

Wyoming

To *Chicago, Ill.*, from Camp Dodge, Lieut E. E. DALE, Lusk.

To Everman, Texas, Barron Field, from Wichita Falls, Lieut. J. T. McBRIDE, Dayton.

UNITED STATES PUBLIC HEALTH SERVICE

Surg. J. W. KERR, upon request of Governor of New Mexico,: proceed to Santa Fe for conference relative to address on public health.

Passed Asst. Surg. J. R. RIDLON, relieved at Anniston, Ala., proceed to Fort Stanton, N. M., for duty.

Passed Asst. Surg. W. C. WITTE, proceed to Lincoln, Neb., on special temporary duty.

Asst. Surg. P. M. STEWART, proceed to Ronda, Wilkes County, N. C., to investigate alleged outbreak of influenza. Relieved at Charlotte, N. C., proceed to marine hospital, Stapleton, N. Y.

Asst. Surg. R. R. SPENCER, relieved at Great Lakes Training Station, proceed to marine hosiptal, St. Louis, Mo., for temporary duty.

Asst. Surg. C. R. ESKEY, relieved at Montgomery, Ala., and from temporary duty at the Savannah Quarantine Station. Proceed to the Reedy Island Quarantine Station for duty.

Asst. Surg. THOMAS PARRAN, Jr., proceed to Cullman, Ala., for duty in outbreak of smallpox.

Acting Asst. Surg. G. D. HEATH, Jr., report at Hygienic Laboratory for temporary duty in connection with studies relating to the prophylactic value of antipneumococcus lipovaccines.

Acting Asst. Surg. SAMUEL LICHTENSTEIN, relieved at Raleigh, N. C., proceed to Columbia, S. C., for duty in extracantonment sanitation.

Acting Asst. Surg. S. M. WEYER, proceed to East Las Vegas, N. M., for duty in connection with influenza control.

San. Engineer C. K. HARRUB, proceed to Alexandria, Va., for temporary duty in assisting in the preparation of plans for the construction of sewers.

San. Engr. H. H. WAGENHALS, proceed to Atlanta, Ga., for conference with local authorities in reference to venereal disease control.

Scientific Asst. GEORGE E. McILROY, proceed to New Haven, Conn., for intensive studies in industrial sanitation preparatory to proceeding to Philadelphia, Pa., for duty.

Scientific Asst. MYRON A. BANTRELL, proceed to Philadelphia, Pa., for duty in industrial sanitation.

Scientific Asst. W. H. PRICE, relieved from duty in the District of Columbia, proceed to Anniston, Ala., for conference concerning the milk situation.

Scientific Asst. HENRY W. G. SHYTLES, proceed to Orange, Texas, for duty in connection with shipyard community sanitation.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Personal.—Dr. Charles F. Carnes, Kosciusko, Miss., is reported to be seriously ill in Memphis as the result of an attack of cerebral hemorrhage.

New Officers.—At the annual meeting of the Union County Medical Society at Eldorado, Dr. William N. Elkins, Junction City, was elected president; Dr. W. H. Myers, vice president, and Dr. H. H. Niehuss, Eldorado, secretary-treasurer. ——At the annual meeting of the Jefferson County Medical Society, held in Pine Bluff, Dr. James M. Lemons was elected president; Dr. William Breathwit, vice president, and Dr. John T. Palmer, secretary-treasurer, all of Pine Bluff.——Pulaski County Medical Society held its annual meeting in Little Rock and elected Dr. Caleb E. Witt, president; Dr. Elmer M. Hudson, vice president; Dr. John B. Dooley, secretary, and Dr. William R. Bathurst, treasurer, all of Little Rock.

ILLINOIS

Personal.—Dr. John D. Colt, Litchfield, dean of physicians of Montgomery County, celebated his eightieth birthday anniversary, January 12.——Dr. Bretislav L. Vilna, Cicero, was attacked, January 24, by three men, who robbed him of his automobile.

Addition to Epileptic Colony.—It is announced that the state epileptic colony, Dixon, is to be enlarged with new buildings mostly of the cottage type, and that 700 patients from Lincoln and other state institutions are to be transferred to the colony.

Revision of Nursing Course.—More than 100 members of the First District Nursing Association met, January 21, at the call of the president, Edna L. Foley, to discuss the proposed legislation providing for the revision of the nursing course, and adoption of the registry system. The body recommended the following improvements in the present situation: The establishment of two courses of registered nurses in the state, the first the graduate nurse with three years' training, and the second the junior registered nurse with one year's training; compulsory licensing of every person engaged in the care of the sick; a three years' training course for graduate nurses, a one year's course for junior registered nurses, and the introduction into high schools of a one year compulsory course in home nursing service for all girl students.

Chicago

Base Hospital Soon to Return.—It is announced that orders to return home have been received by Base Hospital No. 11, and the organization will probably be home this month. The hospital has been located at Nantes and has been under the surgical direction of Nelson M. Percy, Lieutenant-Colonel, M. C., U. S. Army, and under the medical direction of George F. Dick, Major, M. C., U. S. Army.

Personal.—Harry D. Orr, Lieutenant-Colonel, M. C., U. S. Army, formerly surgeon of the First Cavalry, Ill. N. G., has recently been made division surgeon of the Thirty-Third Division, which is now on duty on the Rhine premises.——Robert B. Preble, Lieutenant-Colonel, M. C., U. S. Army, returned home, February 2, after seven months' service in France.——Allen B. Kanavel, Lieutenant-Colonel, M. C., U. S. Army, reached Boston on his return home from France, January 22.——Dr. William Blanchard has been exonerated in the case of the death of Clara Schultz, who was killed by the physician's automobile, January 23.——Dr. William A. Evans has been appointed medical adviser of the special commission appointed, January 24, to recommend improvements in the standards and feeding of children in Chicago public schools.

Red Cross Thanks Physicians.—At the meeting of the Chicago Medical Society, January 29, the work of the Chicago chapter of the American Red Cross was described by Mr. Marquis Eaton, its chairman. He states that physicians had donated services estimating to $200,000 to members of soldiers' families requiring medical aid. The Chicago chapter has accomplished the establishment of four base hospitals, the equipment of sixty-nine ambulances, the recruiting of two ambulance companies, the shipment of more than $4,000,000 worth of medical supplies overseas, and the furnishing of medical aid to 18,000 soldiers and their families. More than 12,000 persons have been instructed by the Red Cross in first aid, and more than 500,000 soldiers have been given the benefit of the canteen service. During the recent influenza epidemic, 1,000 nurses were provided by the Red Cross for influenza victims in emergency cases. He announces that the Red Cross intends to keep an emergency storage and equipment for 1,000 cases to be used in the event of epidemics or other emergencies.

IOWA

New Health Bill Drafted.—Dr. Guilford H. Sumner, Des Moines, secretary of the state board of health, conferred with a committee of legislature, January 21, relative to placing a bill before that body relative to venereal disease. The bill provides, first, authority for local boards to make investigation in regard to the prevalence of social diseases, and second, authority to make inspection, examination, and quarantine of those afflicted with such disease.

To Require Admission of Influenza Cases.—At Waterloo the city board of health by mandamus sought to require St. Francis Hospital to admit cases of influenza, which had been refused by the hospital authorities during the epidemic of influenza. The hospital authorities obtained an injunction restraining the board from taking patients to the hospital. The matter is now under settlement in the courts, a hearing in the matter on the mandamus and the injunction having been held, January 8, before Judge C. W. Mullan. At the hearing local physicians and experts from Chicago were heard in connection with the transmissibility of the disease. The Sisters who run the hospital claim that it is not adapted to take contagious cases and they could be admitted only at the serious risk of the other patients.

Personal.—Dr. James M. Barstow, Council Bluffs, who has served for twenty years as medical member of the Insanity Commission of Council Bluffs Division of the District Court, has been reappointed for a two-year term.——Dr. Charles S. Grant, Iowa City, has been appointed a member of the state board of health, to succeed Dr. Edwin E. Harris, Grinnell, who has moved to Boulder, Colo.——Dr. Dennis F. Fitzpatrick, Iowa City, has been appointed physician of Johnson County, to succeed Dr. John G. Mueller, deceased.——The home of Dr. John M. Sturdivant, Cincinnati, was destroyed by fire, January 4.——Dr. Alexander Crawford, Mount Vernon, announces his retirement from practice at the beginning of the year.——Dr. Frank C. Titzell, Iowa City, has been appointed a member of the Harvey (N. D.) Hospital.

LOUISIANA

Superintendent Changes Station.—Dr. Robert S. Curry, New Orleans, who resigned as superintendent of the Mississippi State Institution of the Blind to engage in special work for the state board of health, has been elected superintendent of the Baptist Hospital, New Orleans.

Society Election.—At the annual meeting of the Medical Society of Orleans Parish, the following officers were elected: president, Dr. Hector E. Bernadas; vice presidents, Drs. Wallace J. Durel and Allen C. Eustis; secretary, Dr. Lucian H. Landry, and treasurer, Dr. Foster M. Johns, all of New Orleans.

MARYLAND

Personal.—Seized by two negroes as he was crossing an alley on Chase Street, late Saturday night, Dr. John G. Alexander, Baltimore, was rendered helpless by a blow on the head and robbed of his watch and chain.——Hugh H. Young, Colonel, M. C., U. S. Army, Baltimore, who sailed for France with General Pershing and has been on duty there ever since, returned to his home in Baltimore, January 26, on a short leave of absence. His headquarters are now New York City until he is discharged.——Archibald C. Harrison, Lieutenant-Colonel, M. C., U. S. Army, Baltimore, executive head and chief surgeon of the Maryland University Base Hospital Unit No. 42, is expected to return to the United States early in February.——Dr. Harry Friedenwald, Baltimore, has been appointed medical adviser to the American Zionists' medical unit, which is now in Palestine, and has sailed from New York to join the unit.

Drug Addicts on Increase.—That morphin and other drugs are obtained in Baltimore most flagrantly, that the number of users has increased alarmingly, and that a number of physicians are engaged in a lucrative practice of furnishing narcotics through prescriptions are the statements made recently by Marshal Carter. The Harrison Antinarcotic Act has not diminished the sale of drugs, but opened a channel through which addicts to drugs can obtain ready supplies of narcotics. That there are three times as many drug addicts in this city now as there were a year ago is borne out by the records of the United States internal revenue inspector's office. The inspector testified at the central police station a few days ago that the records of his office showed 750 names in 1917, and that for the year just closed the number has increased to 2,100. A quiet investigation was conducted by the police recently, and the names of physicians prescribing and the druggists furnishing drugs were obtained. Through the system of prescribing for the "reduced treatment," a number of addicts have obtained major quantities and have been able to peddle the drug.

NEW JERSEY

New Officers.—At the annual meeting of the Atlantic County Medical Society, held in Atlantic City, January 10, Dr. Henry T. Harvey, Atlantic City, was elected president; Dr. Henry C. Munro, Jr., Pleasantville, vice president, and Dr. Edward Z. Holt, Atlantic City, secretary-treasurer. The society adopted resolutions deploring the action of the Atlantic County Deputy Board of Free Holders in refusing to furnish funds for the continuance of the work of the mosquito extermination.

Personal.—Dr. Byron M. Harmon, resident physician to Mercer Hospital, Trenton, is one of the fifteen physicians who comprise the relief unit being sent by the American Red Cross for work among Syrians and Armenians.——E. Blair Sutphen, Lieutenant, M. C., U. S. Army, Morristown, who has been ill with typhoid fever at Camp Zachary Taylor, Ky., is reported to be convalescent.——At the annual meeting of the board of health of Gloucester Dr. John A. Beek, Gloucester City, was elected medical inspector. The annual report of the treasurer of the board showed that more than $6,000 was spent during the influenza outbreak in payment of physicians and nurses. The entire expense of the board for the year will exceed $8,000.——Dr. Charles B. Sitgreaves, Pemberton, has been appointed medical superintendent of the Burlington County Tuberculosis Sanatorium, New Lisbon, to succeed Dr. Daniel F. Remer, Mount Holly.

MASSACHUSETTS

East Boston Physicians Meet.—At the fifth annual meeting of the East Boston Medical Society, Dr. Frank H. Tilton was elected president; Dr. Robert Bonney, vice president; Dr. J. Danforth Taylor, secretary, and Dr. Alexander L. McLaren, treasurer, all of Boston.

Personal.—Dr. Frank G. Wheatley, North Abington, has been appointed a member of the board of trustees of the Massachusetts School for Feeble-Minded.——Dr. W. Edward Balmer, Whitinsville, has been nominated medical examiner (coroner) for the seventh Worcester District to succeed Dr. William L. Johnson, Uxbridge, resigned.

NEBRASKA

New Dodge County Officers.—At the annual meeting of the Dodge County Medical Society, held in Fremont, Dr. Albert E. Buchanan, Fremont, was elected president, Dr. Albert E. Hoff, North Bend, vice president, and Dr. Charlotte P. Siever, Fremont, secretary-treasurer.

Personal.—Dr. Hall H. Humphrey, Daykin, has been appointed a member of the Board of Medical Examiners of the state board of health, succeeding Dr. William T. Johnson, Pawnee City, deceased.——Dr. Charles E. Hershman, Alliance, has been appointed state surgeon of the Burlington System.

Hospital Items.—Mrs. Margaret A. Henry, wife of Dr. Edwin C. Henry, Omaha, has purchased two lots at Twenty-Sixth and Dewey streets, on which she will erect a new Lord Lister Hospital, three or four stories in height, with accommodation for 125 to 150 patients. The building will be ready by the end of the year.——The Methodist Hospital, Omaha, has purchased the house of Mrs. T. T. Northwall for $10,000.——The board of trustees of St. Luke's Hospital, Kearney, has purchased a new site for a building, and expects to break ground for the erection of a new building for the institution, to cost $50,000.

NEW MEXICO

Personal.—Dr. Leo L. Cahill, Springer, is seriously ill and under treatment at Miner's Hospital, Raton.——Dr. Charles M. Yater, Roswell, has been appointed health officer of Chaves County.——At the annual meeting of the New Mexico Public Health Association held in Albuquerque, Dr. Oliver T. Hyde, Albuquerque, was elected first vice president; Dr. Frank N. Carrier, Santa Rita, secretary, and Drs. Robert C. Kirkwood, Major, M. C., U. S. Army, Fort Bayard; Walter E. Kaser, East Las Vegas; James N. Massie, Santa Fe, and William F. Wittwer, Los Lunas, were elected directors.

Public Health Needs of the State.—Surg. John W. Kerr, U. S. P. H. S., as the result of an exhaustive study of public health conditions in New Mexico, details the personnel and expenditure required in his opinion properly to protect the health of the people of the state. This includes a health council composed of physicians and laymen and a state department of health with adequate appropriations to carry on the work; commissioner of health with a sanitary commissioner, bacteriologist and laboratory; vital statistician; supervising public health nurse, and such clerical assistance as may be necessary. He estimates that the state could easily afford to devote $50,000 a year to health work.

NEW YORK

Personal.—Dr. W. A. Matlick, Buffalo, has been appointed superintendent of the Aitken-Crow Wing Counties Tuberculosis Sanatorium, near Deerwood, Minn.——Dr. Julius Dworetzky, Staten Island, formerly of the sanatorium at Otisville and Sea View Hospital, announced that he has returned from France and will resume practice at Liberty.

Bill to Put State in Dairy Business.—An amendment to the Cotillo bill, aimed at the distributor's-producer's milk trust, has been framed for introduction into the legislature. It proposes a state commission to deal with the milk problem with authority to spend $250,000 or more yearly to establish agencies for the distribution and sale of milk at fair prices.

Enforcing Narcotic Drug Control.—Plans for the enforcement of the narcotic drug law, which went into effect February 1, were recently formulated at a conference of deputies of the Department of Narcotic Drug Control. The department intends to have its representatives visit every person or institution authorized to possess, dispense or prescribe habit-forming drugs to ascertain if their records comply with the law, and in case of violation to enforce the law and take steps to have the offender punished. Blanks have been sent to 3,000 persons affected by the law. The Department of Drug Control sent a communication to the New York County Medical Society stating that it realized that many of the narcotic drug problems were administrative, educational and medical rather than legislative, as was most clearly shown by the testimony brought out at the hearings of the legislative investigating commission. The commission therefore wished so to administer the law that the honest physician would be hampered as little as possible in the care and treatment of drug addicts and other patients. The commission also announces that its purpose is to administer the law in a spirit of helpfulness to the unfortunate drug addicts and to put them under such care and restriction that the growing evil of narcotic drug addiction may be effectually checked. The commission earnestly requests the cooperation and assistance of the medical societies of the state in restraining certain well known evils and abuses that existed among some of those legally entitled to possess and dispense narcotic drugs, and invites both medical organizations as such and physicians as individuals to consult freely with the department and to offer either suggestions or advice.

New York City

Ask Copeland's Resignation.—At a meeting of the representatives of more than sixty New Y[illegible] January 20, the action of Health ([illegible] Copeland in separating the division of industrial hygiene from the bureau of preventable diseases was condemned. Demands were made for Dr. Copeland's resignation and for the investigation of his whole bureau by the board of aldermen and by the state legislature.

Personal.—Richard Derby, Jr., Major, M. C., U. S. Army, who has been serving with a medical unit in France, has returned to this country.——Dr. Dudley D. Roberts has been released from military service and has resumed his practice in Brooklyn.——Charles White Berry, Lieutenant-Colonel, M. C., N. G., N. Y., Brooklyn, has been appointed adjutant-general of the state.——Dr. Smith Ely Jelliffe has retired from the editorship of the *New York Medical Journal.*

To Extend Industrial Hygiene Work.—As the result of a conference held by the health commissioner, Dr. Royal S. Copeland, and representatives of the labor sanitation conference, plans have been announced for the extension of the health department's work in industrial hygiene. The work is to be extended to new fields of industry, including stone and marble cutters, lithographers, printers, painters and the shipbuilding industry. The board of estimate has consented to make the money for this work available at once, and Dr. Copeland has appointed ten temporary medical inspectors and fifteen temporary sanitary inspectors to begin work immediately.

Gift to Broad Street Hospital.—An anonymous donor has agreed to give $100,000 to the Broad Street Hospital with the provision that the balance of $200,000 needed for the erection of an addition to the hospital be raised by March 1, 1919. This hospital, which has been in operation only since September, 1917, had to increase its facilities within three months after opening its doors by leasing the entire adjoining building. Admirers of the late Col. Theodore Roosevelt have pledged themselves, as a memorial to him, to endow an elaborate suite of rooms in the new addition. Up to the present time $60,000 has been contributed, and the two buildings adjoining the hospital have been purchased and are being held in trust for expansion.

NORTH CAROLINA

Personal.—Dr. Edgar L. Sutherland, Dublin, Va., is reported to be seriously ill with bronchial pneumonia.——Dr. James E. Kerr, Lilesville, and Julian D. Maynard, Wadesboro, have been made members of the Waynesboro Board of Health.

New Officers.—At the annual meeting of the Buncombe County Medical Society, held in Asheville, the following officers were elected: president, Dr. Charles D. Colby; vice president, Dr. James M. Lynch, and secretary-treasurer, Dr. John W. Huston, all of Asheville. It was reported that twenty-five members of the society either were at present or have been in the military service of the United States.

County Health Organization.—The progress of county health work in the state is encouraging. At present sixteen counties embracing a total population of 687,634, or 28.5 per cent. of the entire population of the state, have well developed and active health organizations. Of these sixteen counties, nine have furnished a summary of their work, which includes the construction of 7,364 sanitary closets, the examination of 20,834 individuals for hookworm disease, and the treatment of 3,928 persons for this disease; the visiting of 479 schools by health officers; the examination of 38,969 schoolchildren by their teachers, and of 12,699 by the health officers; the treatment of 6,171 children for physical defects; the physical examination of 1,528 adults by health officers; the inoculation of 37,324 persons against typhoid fever; the vaccination of 6,450 against smallpox; the quarantining of 4,356 cases of infectious diseases; the holding of 696 public health meetings, with an attendance of 87,450, and the preparation of 815 articles dealing with health subjects for the county papers.

OREGON

State Board Budget.—The state board of health has asked the legislature to appropriate $47,500 for the coming biennium. The plan proposed provides for an executive office, with a state health officer at its head, a bureau of vital statistics, a bureau of preventable diseases, a bureau of hygiene and sanitation, a bureau of laboratory work, apparatus, and in addition, a general expense item of $4,700.

Personal.—Dr. Leon Wolff has resigned as deputy city health officer of Portland, and has been succeeded by Dr. Ernest N. Crockett, Portland, who has recently returned from military service.——Dr. Estella Ford Warner, Portland, has been appointed director of social hygiene and physical education of the Young Women's Christian Association in Russia, and sailed for Archangel, Russia, January 22.——Dr. Seth M. Kerron has been appointed to succeed Dr. Waldo L. Cheshire as health officer of Eugene and in addition will act as school health officer.——Dr. Edgar O. Dutro, Hood River, deputy state health officer, has resigned.

Influenza.—In Portland, January 19, it was believed that the epidemic of influenza had been checked, though there were 204 new cases reported the previous day, with seven deaths. During the previous week 1,850 new cases had been reported, with a total of 115 deaths reported, though some of the deaths belonged to the previous week's record. Lieutenant-Colonel MacGruder of the United States Public Health Service, who has been in charge of sanitation in extracantonment zones on the Pacific Coast and who was sent by Surgeon-General Blue to help combat the epidemic, is quoted as being strongly in favor of the universal wearing of well made masks as a preventive measure, in connection with the other repressive measures that have been in force. To accommodate the large number of patients, barracks were erected at the Multonomah County Hospital. The cubital system of segregation of influenza patients was adopted in all Portland hospitals beginning with the date mentioned. To January 24, the total number of cases reported to the state health department since October 13 was 16,355; the total number of deaths 1,151. The total number of cases since January 1 was 4,719, and the number of deaths 307. The number of cases reported January 23 was 102, with twenty deaths. Dr. E. A. Sommer, director-general of the organization fighting influenza in Multonomah County, says that stronger state health laws with power of enforcement are needed to combat such epidemics.

PENNSYLVANIA

Semicentennial of Society.—The Medical Society of Franklin County celebrated its fiftieth anniversary, January 21, with a dinner at Chambersburg. There is only one of the charter members of the society still living, Dr. J. Burns Amberson, Waynesboro, who was unable to be present. The [illegible] were elected: president, Dr. Samuel D. [illegible]; vice presidents, Drs. Joseph P. Maclay, Chambersburg, and LeRoy H. Saxe, Fannettsburg; secretary, Dr. John J. Coffman, Scotland (reelected), and assistant secretary and treasurer, Dr. Frank N. Emmert, Chambersburg.

Personal.—After ten years of official connection with the department of health of Pennsylvania, during the last year of which he served as acting commissioner of health, Dr. B. Franklin Royer, Harrisburg, has reentered civil practice.——Dr. Charles E. Hays, Johnstown, was elected president of the state board of the Anti-Saloon League at its annual meeting in Harrisburg, January 22.——The resignation of George H. McConnon, Captain, M. C., P. M., Wilkes-Barre, has been accepted under date of Dec. 16, 1918.——The leave of absence granted Samuel H. Heller, Captain, Sanitary Detachment, First Infantry, P. R. M., Lancaster, has been extended from January 12 to April 12.

Philadelphia

Influenza Declining.—During the week which ended at noon, January 31, 614 new cases of influenza were reported to the bureau of health, as compared with 792 cases in the previous week.

MEDICAL NEWS

Election.—The Philadelphia County Medical Society at its annual meeting, January 15, elected Dr. B. Franklin Stahl, president; Dr. John W. West, vice president; Dr. J. Morton Boice, secretary, and Dr. Edward A. Shumway, treasurer.

Officers Elected.—At the last meeting of the Northern Medical Society, the following officers were elected for the ensuing year: president, Dr. Irwin S. Meyerhoff; vice president, Dr. Louis Jurist; secretary, Dr. Mulford K. Fisher; treasurer, Dr. John W. Millick, and corresponding secretary, Dr. David Nussbaum.

Personal.—Dr. Laura Hunt has returned after nine months of service in France in the laryngological department of the children's bureau of the Red Cross.——William H. Walsh, Lieutenant-Colonel, M. C., U. S. Army, has been made chief medical director of the Great Children's Hospital to be established at Mons, Belgium.

Italian Hospital Founded.—The founding of an Italian hospital in the vicinity of Sixty-Fifth and Vine streets, and the announcement that a prominent Italian had given $50,000 toward the project, was made public at a dinner at the Adelphi, January 30, given by the Italian residents of the thirty-fourth ward to the physicians, nurses and other members of the thirty-fourth ward influenza board for their faithful, unselfish and heroic services at the time the influenza epidemic was raging.

WASHINGTON

Personal.—Dr. Edward F. Hixon, Vancouver, who has been seriously ill for several months, is reported to be improved.——Dr. Stanley H. Titus, Spokane, who has been ill with pneumonia, is convalescent.——Dr. Alice M. Smith, Tacoma, has been made a fellow of the North British Academy and a member of its honorary council.

WISCONSIN

Proposes Vaccinating Legislators Against Influenza.—Dr. C. A. Harper of the state board of health, in his report to the finance committee of the legislature asking for appropriations for the present year, suggests that the members of the legislature be vaccinated against influenza and pneumonia with the government lipovaccines, as an example or test of the efficacy of the vaccines, and that the people generally be vaccinated against influenza, which he says is by no means past the danger point in the state. Appropriations are asked for the work of the board in the amounts of $55,000, which includes $5,000 for child welfare work and $5,000 for work against contagious diseases. An additional appropriation of $25,000 is also asked to combat venereal diseases, to equal the $25,000 appropriation of funds for this purpose from the federal government.

CANADA

New Psychiatric Hospital.—A new military hospital for mental diseases is to be established at London, Ont. The plans call for six ward buildings and one administrative building. The hospital will not be used for nervous cases, as mental and nervous cases are kept separate.

Queen's University.—January 29, Queen's University graduated a large class in medicine, the largest in the history of that institution. A number of the graduates of this last war session are medical students who served overseas in various capacities, but principally with the Queen's Hospital Corps in Egypt and France.

Personal.—Dr. James F. Cattermole, assistant superintendent of the Hospital for Epileptics, Woodstock, Ont., has resigned.——Capt. Benjamin Lyon, C. A. M. C., Kingston, Ont., has been awarded the Military Cross.——Capt. Walter W. Wright has returned to Toronto from overseas and resumed practice.——Surgeon-Probationer Graham Chambers, Toronto (1920), is on H. M. S. *Badger*, which was recently at Constantinople and was proceeding to Sebastopol.

Influenza in Quebec.—In the legislature of Quebec, the leader of the opposition, Mr. Arthur Sauve, recently expressed himself as not being satisfied with the steps taken by the board of health of that province to check the Spanish influenza which still exists in many parts of the province. He thinks that the board of health started too late when the epidemic struck that province. The prime minister, Sir Lomer Gouin, strongly defended the board and said that great devotion had been shown by the physicians and nurses of the province, and that the board of health was showing the same diligence today as it had at the outbreak of the disease and had continued to do throughout its course.

GENERAL

Laryngologists to Meet.—The annual meeting of the Middle Section of the American Laryngological, Rhinological and Otological Society will be held at Chicago, February 22, under the chairmanship of Dr. Otto J. Stein.

Personal.—Major-Gen. William C. Gorgas, U. S. Army, retired, will return from Guatemala to Washington, D. C., early in February, and on his return to South America in the spring will be accompanied by Mrs. Gorgas.——Rear Admiral Robert M. Kennedy, M. C., U. S. Navy, in command of the Naval Hospital, Washington, D. C., was operated on for intestinal disease, January 7.——Lieut.-Col. Herbert A. Arnold, M. C., N. G., Pa., retired, Ardmore, Pa., was elected surgeon of the Pennsylvania Commandery of the Military Order of Foreign Wars at its annual meeting, January 14.

Progress of Venereal Disease Work.—The division of venereal disease, United States Public Health Service, is conducting throughout the country approximately 175 clinics. During the period from Nov. 15 to Dec. 15, 1918, there was a total of 19,456 visits to twenty-nine clinics, or an average daily attendance of 38.1 at each clinic. There were 2,489 new cases, which was an increase of 188 cases over the preceding month. A total of 25,543 treatments were administered and 11,195 cases were remaining under treatment in the clinics, hospitals, and detention homes on December 15. As a result of 1,845 "follow-up visits" made by the clinic nurses and social workers, there were 1,070 visits to the clinics.

To Inspect Home Hospitals.—With the authorization and approval of Surgeon-General Ireland of the Army, an official committee of the National Red Cross has begun a tour of inspection of the forty-three general hospitals throughout the country where wounded American fighting men are receiving care. Debarkation hospitals where wounded soldiers, marines and sailors are being received from overseas are being visited first. The object of the inspection is to improve the service of the Red Cross wherever possible. The committee is headed by Col. C. H. Connor, assistant general director of military relief and chairman of the Medical Advisory Committee. The other members are lay men and women.

American Woman's Hospital Helps Serbia.—At a recent meeting of the American Woman's Hospitals, Madame Grouitch, wife of the Serbian minister and herself a commissioner of the Serbian government, told of the great need of physicians in Serbia. There are only 140 Serbian physicians left; all the rest have been killed in war or have died of disease. The Serbian unit of the American Red Cross, which will leave for work in Serbia as soon as passports can be obtained, includes Dr. Minnie C. O'Brien, San Antonio, Texas; Dr. Marjorie B. Burnham, Kinsman, Ohio; Dr. Katherine M. Cook, New Wilmington, Pa.; Dr. Mary H. Elliott, Holly Springs, Miss.; Dr. Alberta F. M. Greene, Fergus Falls, Minn.; Dr. Lulu Hunt Peters, Los Angeles; Dr. Helen T. Rattermann, Cincinnati; Dr. Harriet M. Gervais, Dorchester, Mass.; Dr. Sarah Elizabeth Foulks, Davenport, Iowa.; Dr. Edna Ward, Denver, and Dr. Marie Hyndman, New York. At this meeting it was announced that an ambulance had been given to the American Woman's Hospitals by the Patriotic Penny and National Special Aid Society of Wilmington, Del. Major Gibson, manager of the Red Cross in France, has allowed $50,000 for the maintenance of the society's hospital at Luzancy. Gifts amounting to about $2,500 from donors in this country were also announced.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian Hospital, New York City, $5,000 by the will of Elizabeth H. Keyes.

Germantown Hospital and Dispensary and Chestnut Hill Day Nursery, Philadelphia, each $1,000 by the will of Sarah R. Watson.

Relief Work in Siberia, an appropriation of $200,000 by the American Red Cross.

Soldiers and Sailors' Hospital, at Boehne Camp, Evansville, Ind., a donation of $1,300 by Mrs. Sallie H. Roots, Evansville, in memory of her parents, for the equipment of one of the new wards.

Johns Hopkins University, Baltimore, $200,000, for the building and equipment of a laboratory or building devoted to the technical arts, or, if more desirable, for the erection of University Library Building, by the will of Eugene G. Mergenthaler.

Lock Haven, Pa., Hospital, a donation of three $1,000 U. S. Liberty Bonds by Farmer Stewart as a memorial to his deceased wife.

Home for Incurables or Home for Aged and Infirm under the auspices of the Philadelphia Federation of Jewish Charities, a trust fund of $20,000 created by the late Rose Rice, on the decease of two sisters, as a memorial to Amelia Rice.

Mount Sinai Hospital, New York City, $15,000; Hebrew Orphan Asylum, United Hebrew Charities, Home for Aged and Infirmed Hebrews, and Hebrew Infant Asylum, each $10,000; Lebanon Hospital,

$5,000, and St. Vincent's and Presbyterian Hospitals, each $2,500, by the will of Benjamin Blumenthal.

Mount Sinai and Women's Hospital, New York City, and Middlesex Hospital, London, England, each $5,000, by the will of Henry Joseph Duveen.

Cornell University, Ithaca, N. Y., $5,000, by the will of Dr. William Mecklenburg Polk, New York City.

Marine Hospitals for Care of Discharged Disabled Soldiers and Sailors.—Under an arrangement suggested by the War Risk Insurance Bureau and made by the Public Health Service, if approved by Congress and an appropriation made, soldiers, sailors, marines and others discharged from military service with disease or injuries contracted in the service will be cared for in the marine hospitals of the United States Public Health Service. At present the War Risk Insurance Bureau under the law creating it and the regulations governing it is responsible for the care of 1,724 beneficiaries who require medical or surgical treatment. Within a short time it is expected that provision will have to be made for at least 24,500 men discharged from the service on account of tuberculosis, and for 50,000 cases of psychoneurosis, epilepsy and other nervous ailments. The plan, which is now before Congress, is to empower the Public Health Service to increase the present capacity of the twenty-two marine hospitals of 1,689 beds, to 5,208 beds, and to provide an additional 2,450 beds in new hospitals and sanatoriums to be built in various parts of the country. A suggestion to make the 150 small Army posts scattered throughout the United States hospitals for the care of these men is not deemed feasible or desirable. The plan now proposed and under consideration would, it is believed, have the advantages of a minimum of outlay for overhead construction and administration, favorable location near large cities, employment of a hospital organization with long and successful practical experience, and finally, the fact that the War Risk Insurance Bureau and the Public Health Service are both parts of the Treasury Department, thus permitting the closest possible coordination of activities.

FOREIGN

Death of Bang.—The micromethod test for sugar in the blood has carried to every country the name of Dr. Ivar Bang, professor of physiologic chemistry at the University of Lund. News has just been received of his sudden death while at work in his laboratory.

Fight Typhus in Siberia.—The American Red Cross announced that an antityphus train, the control of which is under the American Red Cross Commission and which is operated by the American Red Cross, is to be sent through Siberia to fight the typhus situation, which has been very grave. The train is composed of fourteen cars, including a car with bathing facilities, cars for clothing, drugs, and for personnel. The train will act as sort of standard bearer. On coming to towns where typhus prevails, the cooperation of local authorities, hospitals and physicians will be obtained, and the work done as far as possible through the Russian people themselves. Circulars printed in Russian will be distributed along the line, informing the people of the necessity of bathing and keeping clean and detailing the chief precautions against typhus.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Deaths in the Profession.—Recent exchanges from Brazil bring a long list of physicians who have been victims of influenza. Among them are Dr. **T. Bayma**, the distinguished physician and bacteriologist of S. Paulo, director of the bacteriologic and the vaccine institutes there, aged 55. His writings on tropical medicine and hygiene have frequently been summarized in The Journal, and he presented seven important communications to the recent South-American Congress of Microbiology.——Dr. **Santos Moreira**, a leading pediatrist of Rio de Janeiro, secretary of the Sociedad Brazileira de Pediatria, director of the *Medicina Clinica* and frequent contributor to journals on children's discases.——Dr. **Paulo Silva Araujo**, a leading microbiologist who studied under Wright in England and under Ehrlich in Germany, and in 1915 published his "Vaccine Therapy of Bronchial Asthma." The clinical laboratory founded by him turned out high grade organotherapeutic products and, among others, isolated the *Bacillus bulgaricus* in Brazil.——The *Brazil Medico* of November 2 gives the names of fourteen other physicians who had succumbed at that early date to the epidemic, including Dr. **S. B. Montenegro**. Nearly all were in the very prime of youth and health.——The death is also reported at Buenos Aires of Dr. **E. Diana**, a popular pediatrist.

CORRECTIONS

Discussion on the Face Mask.—In the report of the proceedings of the American Public Health Association (The Journal, December 28, page 2174) a short discussion is credited to Dr. W. H. Kellogg, secretary of the California State Board of Health. Dr. Kellogg writes that the statement published did not represent what he said. Most of Dr. Kellogg's discussion referred to charts which he exhibited and which could not be reproduced in connection with the abstract sent in by the reporter. A more complete copy of the discussion follows:

Dr. W. H. Kellogg, San Francisco: I shall confine the few remarks I have to make to the subject of the wearing of gauze masks because I am more or less familiar with this phase of the prevention of the spread of influenza by reason of having come from California where this method has been given the most thorough trial. The people of San Francisco put on gauze masks by an ordinance that was enforced very thoroughly, and they wore these masks on the streets during the time this ordinance was in effect. I have always believed very strongly in the possibilities for the prevention of droplet-borne infections by means of the use of the gauze mask, but I am sorry to say, I have not the same confidence now that I formerly had. It used to be my custom to tell medical students that if they put gauze masks on all people for a period of two or three weeks, all the droplet-borne infection would probably be abolished, but I no longer believe that.

In the determination of the value of a measure such as this, the only way by which we can arrive at any rational conclusion is to compare the experiences of cities that have used the measure and those that have not. The mistake has been made by some of our ardent advocates of considering only the experience of San Francisco and look at the curve of the deaths or of the cases and note there was a rapid decline from the moment the masks were put on the people.

(On a chart which was exhibited it was shown that the curve for San Francisco resembled closely that of Washington and Chicago, but that Los Angeles differed.)

It has been thought by some people in San Francisco that the experience of Los Angeles has proved that the mask did the business for San Francisco, and that Los Angeles is having a bad time because it did not wear the mask. The state board of health was importuned to put the mask on Los Angeles, but the evidence was not such as to warrant a move of this kind.

These curves (referring to chart) are the deaths and in Los Angeles you will note that the curve is sharper than it is in San Francisco. But against the curve of Los Angeles I have on the other charts the cities of Washington and of Buffalo, which are practically the same size, and of Philadelphia, which is much larger, and so far as I know, there are no cities in the list that put on the masks to the same extent that San Francisco did. Of the forty cities, the figures for which are published in the United States Census Bureau list, 13 had a higher mortality rate than San Francisco; 26 had a lower mortality rate, so that we have two things to consider in comparing these cities, one of which is the shape of the curve and the duration of the epidemic. It is to be noted that the period of time is about the same for all of them from the beginning to the end. That is one point in which San Francisco shows no difference over the others. Another is the number of deaths resulting from the disease. San Francisco had a death rate of 4.7 per 1,000, whereas Los Angeles, which apparently suffers by comparison on the chart, had a death rate of 3.3 per cent.; Chicago 3.5 per cent., etc.

As to the reasons for the failure of the mask which theoretically should be such a valuable thing, there are a number of things to my mind to account for that. If the mask is properly made it affords an efficient protection against droplet-borne infections. Many of the masks used were not properly made; they were made of too light gauze and of too few layers, many of them, to comply with the law. Again, people did not wear masks in the places where they were needed most, where people entered into associations with ill relatives and office associates. In the banks, when the curtains were pulled down, the clerks took off their masks and got busy over their books, so that there was every chance, according to the theories of droplet-borne infections, for the disease to travel from one to the other. Therefore, the measure does not appear to me to be worthy of consideration.

I am growing doubtful as to the value of the mask as a protection to the individual who understands what he is doing. San Francisco Hospital had an incidence of infection of 78 per cent. among the trained nurses which could not be accounted for by the fact that they took the masks off when in association with patients. If that were the cause of the infection, it would confirm the usual incidence among the general population, but such a high rate was to be accounted for only by the fact that they got their infection from patients themselves in spite of the fact that they were wearing properly made gauze masks.

Abdominal Hysterotomy.—We are informed by Dr. E. G. Zinke that an error occurred in the abstract of his paper on "Limitations of Cesarean Section," published in The Journal for Jan. 18, 1919, page 220, second column, tenth line from the bottom. The words "abdominal hysterectomy" should read "abdominal hysterotomy."

MEXICO LETTER

Mexico City, Jan. 26, 1919.

The Typhus Congress

The Congreso Nacional del Tabardillo closed its sessions January 21 after a week of discussion which seems destined to bear fruit. About 135 physicians registered for the meeting, and thirty-four communications were presented relating to the history of Mexican typhus, its etiology, symptomatology, treatment, prophylaxis and epidemiology. Practitioners came from all parts of the republic to take part in the discussions, even from the remotest states.

Two articles were read which sustained the assumption of the important part played by Plotz' *B. typhi exanthematici* in the development of the disease, but the predominant opinion was that it had not been proved that this bacillus was the specific germ of the disease. The observations of Muratet, Ceconi and Fraenkel on the importance of the provoked exanthem in differentiation were cited, and it was urged that observations to confirm this should be compiled.

TREATMENT

In treatment of the disease, the antityphus serum prepared by Nicolle and Blaizot was the main topic discussed, and it was deplored that it had not been possible as yet to prepare it in Mexico nor obtain it from the United States (our usual source of supply for therapeutic serums), as to date we have not learned that it is yet made in our neighbor nation. Besides the scientific interest of the matter, it has commercial interest as well, which perhaps the manufacturers of biologic products will not overlook. As Mexican typhus is endemic throughout the central tableland of the country, there would be a great demand for the said serum, especially if the favorable results which the French investigators are said to have realized from its use are confirmed by others.

RESEARCH ON TYPHUS

A permanent committee was appointed to carry on research on typhus—which still has many points insufficiently cleared up—and to organize the next congress which will convene in the City of Mexico in 1921. The proposal, by Dr. A. B. Vasconcelos, to found a special institute for experimental study of tabardillo was approved, relying on private benevolence for the purpose. Although it was recognized that the present moment is not very propitious for such an undertaking, yet the possibility was recognized that some rich and philanthropic citizen or citizens of the United States might prove willing to invest mony in this way as it would redound to the benefit of humanity and would contribute to draw still closer the bonds of friendship between the two neighboring peoples, which is the ideal cherished by various leading minds among the Mexicans. The committee of organization for the next typhus congress includes Dr. Alfonso Pruneda as president and Dr. R. E. Cicero as secretary. The address of the latter is 2/a calle de las Moras, No. 34, Mexico City.

Official Campaign Against Syphilis

The Departamento de Salubridad, the national public health authority, has decreed that in future the candidate for matrimony must present a certificate which asserts that the Wassermann seroreaction with the blood of the candidate has given negative results. Those persons who reside at points where there are no laboratory facilities will comply with this formality by presenting a certificate based on the clinical investigation and equally negative. As a further measure, physicians are required to inform the departamento of all their syphilitic patients who have abandoned treatment before they have been cured as radically as is possible.

Inherited Syphilis at Puebla

We are informed from this neighboring city that during the month of December last there were thirty-one deaths from inherited syphilis. This is the largest number ever recorded for a single month, and it indicates the increasing prevalence of syphilis in that community.

British War Relief Work

The British Women War Workers Society of this city presented a favorable balance sheet at the close of the year. According to this, they had collected more than 14,000 pesos, almost all of which was invested in the war relief work done by the society; 221 sweaters, 790 pairs of socks, and a large number of cotton articles were forwarded to Europe.

Association for Prevention of Blindness

This beneficent association is soon to open a free consulting dispensary for persons with anything wrong with their eyes. In connection there will be an optician's establishment. In order to accomplish this high aim, an appeal was made to charitable persons and they succeeded in collecting the sum of 8,000 pesos from private parties, with which they have started the work. The association accepts with gratitude any cash donations which any one may make to aid the work of the consultorio. The official title of the association is the Asociacion par evitar la Ceguera en Mexico, and its post office address is Apartado 5331, Mexico, D. F.

Proposed Roadway Between Mexico City and El Paso

A project is under discussion for the construction of a roadway to connect this city with El Paso (Texas) which would permit, if realized, automobile travel between the two countries. There is a plan to form a company which will supply the necessary capital, and they have asked for the concession from the authorities.

The Spanish Edition of The Journal

I have been able to ascertain that the first number of the Spanish edition of The Journal has made a very good impression on the profession in Mexico on account of the value of its original articles as well as by the wealth of information which it contains.

Personal

Dr. Rafael Cepeda has been appointed presidente municipal of the City of Mexico, and Dr. F. Bello, a prominent internist, has been appointed to a similar position in the neighboring city of Puebla. Dr. Bello has announced that he will turn back into the municipal treasury the salary to which he is entitled, as long as he holds the position.

The Cold Wave

The cold was intense here from January 22 to 24; we are not accustomed to such cold weather. It is known that two children died in consequence of sleeping in the extreme cold, and three pedestrians were buried by the snow on the road to Toluca.

LONDON LETTER

London, Jan. 7, 1919.

The Prevention of Venereal Disease

The apprehended danger of the increase of venereal disease as a consequence of demobilization has been referred to in these letters. A controversy that would have been impossible only a few years ago, when the subject of venereal disease was treated with reticence in the lay press, has taken place in the *Times*. A number of the leaders of the profession, including Osler, Ferrier, Rickman Godlee, and Mott, published a joint letter urging, in view of the daily increasing menace, that "timid and hesitating counsels should give place to clear advice and strong purpose. Extraneous considerations can have no place in sanitary problems; it is because they have had too much place that the National Council for Combating Venereal Diseases has failed. Smallpox and typhoid have been largely banished by measures based on knowledge of these diseases. Venereal diseases should be similarly dealt with. It has been abundantly proved during the war that they can be controlled by simple sanitary measures, the success of which is striking, and the materials for which can be obtained from any pharmacist. These measures should at once be made known, and available and organized instruction given in their application. This is the *only* effective method of meeting a dangerous situation—dangerous not only for our soldiers and sailors, but for the population at large."

To this criticism the president, vice president (Sir Thomas Barlow) and chairman of the National Council for Combating Venereal Disease replied that "while the council has taken full cognizance of all available scientific knowledge, it has deliberately decided against advocating the particular methods apparently suggested by the writers. The panacea is a wholesale distribution of prophylactic packets. The policy of the national council since 1916 has been early preventive treatment. Since July, 1918, it has pressed the same policy on the government and on the civilian population, and it is now in process of being organized throughout the country. The former course was denounced in scathing language by the secretary of the navy when America entered the war. The latter is now being vigorously carried out by the American medical authorities, experience having powerfully attested its efficacy. The success claimed by Sir William Osler and his associates for their procedure has been at least equaled by that advocated by the national council, and this question cannot be discussed without taking into account the special facilities that exist whenever forces under discipline are being dealt with. The national council is not only concerned with combating disease in the armed forces but is striving to avert the peril on demobilization. Measures that can be applied to disciplined bodies may be absolutely impracticable in dealing with the general community. 'Extraneous considerations,' which the signatories lightly dismiss, and sentiment, which may exert a dominant influence on public opinion, cannot be disregarded. It is easy for distinguished scientists to lay down 'simple sanitary measures,' but the question resolves itself into administrative measures required on a large scale throughout the country, and here the difficulties begin. You cannot administer in such intimate matters without the intelligent acquiescence of the people. The unanimous opinion of sixty health officers of counties and large towns cannot be ignored. 'We are strongly of the opinion,' they state, 'that not only would the official distribution of prophylactic outfits to the civil population lead to moral deterioration of the nation, but it would not materially diminish the prevalence of venereal diseases.' In dealing with human nature it is not always possible to conform to the letter of scientific law."

The controversy was continued by laymen who were evidently somewhat mystified as to the point at issue, though one wrote: "If the critical hour is, say, 11 p. m., the national council objects to the use of disinfectants at 10:45, but raises no objection to the treatment at 11:05. The sinner must not prepare for immorality, but he may use the best means known to science to escape its consequence." In a leading article the *Times* took up the question and informed its readers that "until recently there was no certain means of cure and no certain means of prevention of syphilis. Medical science has now provided us with both, and there is prospect that in a few years one of the most appalling scourges of modern life will be almost unknown. Syphilis can be prevented by the use of calomel before infection, and less certainly by its use within an hour or two of infection. Medical evidence indisputably supports the view of Sir William Osler and his cosignatories. A simple amendment of the venereal diseases act, 1917, is necessary, in order that the preventive medicine may be easily obtained under the necessary safeguards." Evidently from motives of delicacy, although deprecating that these should stand in the way of the public interest when the extinction of such a plague is attainable, the *Times* has used the word "medicine" for ointment. This has led laymen into the error that syphilis can be prevented by the internal administration of calomel.

Malaria in England

The measures taken by the medical departments of the army and the Local Government Board have been effective in preventing the spread of malaria in this country through the agency of soldiers returned from the eastern campaigns (the worst of the war areas as regards malaria) who are carriers of the parasite. Army malaria patients brought back from those countries were treated in the military hospitals, which reduced to small and manageable limits any risk of the spread of the disease, except in a few districts where there was evidence of malaria having been contracted locally, on account either of the presence there of a large number of malaria carriers, or the existence of anopheline mosquitoes. As shown in previous letters, indigenous cases of malaria have thus originated in England during the war. *Anopheles* mosquitoes are found to be present practically in any part of England where the conditions are favorable to their breeding. Even the demobilization of the army now in progress may lead to an increasing number of human carriers of the malaria parasite being spread throughout the country. Fresh measures to meet this situation are being devised by the medical department of the Local Government Board in the form of extended civil administration. The local authorities will be directed to add malaria to the list of diseases made compulsorily notifiable and to transmit at once information of such cases. The precautions to be taken with a view to preventing the spread of the disease will also be published, and government medical inspectors will at once visit any infected area.

The Treatment of Hydrophobia in England

About twenty-five years ago hydrophobia was completely stamped out of Great Britain by the compulsory muzzling of dogs—a procedure that aroused considerable opposition among dog fanciers. During the war, cases have occurred in the west of England. As the most stringent precautions in the form of quarantine are taken when dogs are imported, and have proved successful during the long period which has elapsed, it is supposed that the disease must have been introduced by dogs carried in aeroplanes. Arrangements have been made for specific antirabic treatment at Plymouth with materials supplied by the Pasteur Institute of Paris. When persons are bitten by dogs in areas in which rabies is suspected it is recommended that the wound be treated as soon as possible with undiluted phenol (carbolic acid) or some cresol preparation or similar disinfectant. The disinfectant should be allowed to come into contact with all parts of the wound, and should then be washed out with water or dilute disinfectant. If no disinfectant of the kind is available, the wound should be thoroughly washed and irrigated with hot or cold water. If the dog is pronounced on competent veterinary authority to have had rabies, the person bitten should be urged to secure specific antirabic treatment as soon as possible, no matter what local treatment has been applied.

Airmen's New Height Record

Capt. Andrew Lang and Lieutenant Blowes have broken the world's altitude record on a British-built and British-engined biplane, flying at Martlesham, near Ipswich. The altitude attained was 30,500 feet, the time taken being 66 minutes and 15 seconds. Through a fault in the oxygen apparatus, Lieutenant Blowes collapsed, and at 28,000 feet the heating apparatus began to work erratically. The machine was brought to a stop through the lack of gasoline pump pressure due to the rarefication of the air. Luckily, Captain Lang was able to descend slowly, and at 20,000 feet Lieutenant Blowes recovered consciousness. Captain Lang had made two previous attacks on the altitude record, which had been held by America. He is well known in Australian motoring circles, and in 1910 drove a motorcar across northern Australia for his government in an exploring expedition. Lieutenant Blowes is an experienced pilot, and in France brought down several German aeroplanes. Both officers suffered from frost-bite, and the observer had to go to the hospital suffering from two badly frozen hands and toes, while the pilot's face and fingers were frost-bitten.

PARIS LETTER

Paris, Jan. 9, 1919.

Early Treatment of Eye Injuries

At a recent meeting of the Académie de médecine, Dr. F. de Lapersonne, professor of clinical ophthalmology in the Paris medical faculty, reported the results he had obtained since July 15, 1918, in the treatment of eye injuries. At that time the large hospitals of Paris were regarded as evacuation hospitals, and, because of excellent transportation facilities, the wounded sent in from the front, were operated on in from twenty-four to forty-eight hours after being wounded. The doctor reported eighty-three cases of this sort in which operation was performed. Many of these patients had other injuries than those of the eyes, in fact, they had sustained multiple wounds, and had been operated on in the surgical service at the Hôtel Dieu.

In all of these cases, except three, the operation was performed under procain anesthesia, irrespective of the extent or degree of the intervention. When the roentgenogram showed the presence of a foreign body or of a fracture, de Lapersonne frequently resorted to orbitotomy, making a curved incision (following the rim of the bone) which gave free access to the orbit, at the same time ensuring the safety of the conjunctiva and the palpebral fissure. Immediate suture was the rule in all these early operations, suture of the conjunctiva after partial or complete ablation of the eyeball, suture of wounds of the eyelids with conservation of even the smallest shreds of tissue, suture of the circumorbital skin wounds, after removing blood clots, bone fragments and foreign bodies, and cleansing the wound. In some instances skin grafting had to be resorted to, using either a sliding or a pedicled flap, in order to cover over a denuded area. De Lapersonne insists that immediate suture of wounds should be the absolute rule in these cases of orbito-ocular wounds which come under the head of urgent surgery.

Treatment of Bone Fistulas

Dr. Auguste Broca recently discussed the statistics on bone fistulas, the result of war wounds, furnished the Société de chirurgie de Paris by Dr. G. Blanchard and by Drs. Dambrin and Montazard. It was interesting to note how Dr. Blanchard succeeded in obliterating the bone cavity resulting from the clearing out of all devitalized tissue in the fistula. At the time of operating, the cavity is treated according to the

Phelps' method (pure phenol, then 90 per cent. alcohol) and then packed with gauze wet with a mixture of phenol, balsam of Peru and spirits of camphor. The dressing is changed on the second or third day. The gauze plug is removed on the fifth day, and from then on the tamponade is made alternately with gauze wet with balsam of Peru and gauze wet with permanganate of potassium. On the tenth to the thirteenth day the bone is cleaned and secondary plombage is performed. Blanchard recommends for this filling a paste consisting of 150 gm. of paraffin; 15 gm. of balsam of Peru and 20 gm. of carbonate of bismuth. This paste, melted, is poured into the wound where it solidifies. Primarily, this is not regarded as a true plombage—to remain *in situ*, to become encysted—but as an internal dressing which is intended to prevent reinfection and which will eliminate itself gradually. The paste in place, secondary suture is done. The results are good, in the sense that a cure has been obtained, as a rule, in from two to four months, and it is possible that this time may be shortened.

Dr. Dambrin and Montazard called attention to the benefit from injection of methylene blue into the fistula (10 per cent. solution in a 5 per cent. solution of phenol or in a 4 per cent. solution of liquor formaldehydi) for the purpose of locating the more or less tortuous channels of the fistulas, and coloring the necrotic tissues, thus giving the operator needed information at the most opportune time. This procedure seems to be a very useful one.

On the other hand, they studied the effect of mineral waters—at the most famous watering places in the Pyrenees—and they found that the waters seemed to promote healing in the cases in which minor superficial lesions persisted, that is, in about 15 per cent. of cases. Sometimes these waters aided in verifying the permanency of the cure by provoking a "poussée" in the apparently healed area. The patients who seem to be most likely to benefit by these waters are those on whom an extensive operation has recently been performed. This treatment should be regarded as being only a supplementary one, to be carried out under the advice and control of an experienced surgeon.

Abdominal War Surgery

At a recent meeting of the Société de chirurgie de Paris, Professor Quénu discussed two reports made to the society on this subject, one by Dr. Caudrelier and the other by Drs. Maisonnet and Coulaud. Dr. Caudrelier divided his cases into two groups: (1) Those in which operation was performed as soon as the patient came under his care; (2) those cases (there were only 2) in which he operated later. There were 24 cases in the first group: 20 cases involved wounding of only one viscus (5 cases of wounds of the small intestine; 8 of the large intestine; one of the stomach; 3 of the liver; 3 of the bladder); in 3 cases several viscera were involved (2 cases of wounds of the large and small intestine; one case of wounds of the liver and the respiratory apparatus); one case of simple penetrating wound without any visceral lesion. Of these 24 cases, 18 were shell wounds and 6 were bullet wounds, and they were operated in from three to six hours after the wounding, most of them at the fifth hour; only one after nine hours. There were 9 deaths from peritonitis and hemorrhage in this series; 15 patients were cured. In the 2 cases in which Caudrelier did not operate immediately, he intervened later because of fever and local symptoms. In one of these cases he operated thirty-five hours after the patient had been wounded by a rifle bullet. He found a large hematoma, containing fetid material, behind the ascending colon. The latter was red, bleeding, but not perforated. This patient died a few days later.

Drs. Maisonnet and Coulaud made 100 observations, as follows: 33 patients were considered inoperable because of the gravity of their general condition; 42 patients were not operated on because they arrived too late or because of their satisfactory general condition in view of the nature of the wound; 17 patients were operated on although in a most desperate condition so as to give them some chance for recovery; 18 patients were in fairly normal condition when operated on.

The results obtained were: Among the 75 instances in which no operation was performed, there were 27 cures, 36 per cent.; among the 35 operated cases there were 11 cures, 31.4 per cent. At first glance, these two sets of statistics seem to be pretty much alike, with the odds slightly in favor of not operating. But Quénu showed, by an analysis of the cases operated, that among them, considered hypothetically as wounds of the abdomen and terminating in a spontaneous cure, were penetrating wounds of the abdomen alone, which should, therefore, be eliminated from the discussion. The principle of surgical intervention in penetrating wounds of the abdomen governs alike the cases seen in war and those seen in civil practice, and the statistics quoted by Maisonnet and Coulaud, in spite of the figures given, support this principle.

Using Soil to Combat Asphyxiating Gases

M. Daniel Berthelot recently stated before the Académie des Sciences that soil or earth can be used as a protection against asphyxiating gases. His researches demonstrated that white sand, either wet or dry, absorbs chlorin very poorly; hence it should not be used for this purpose. Yellow sand, containing iron, is preferable, although its gas absorbing power is not great; in fact it is a mediocre absorbant. On the other hand, ordinary soil, suitable for agricultural purposes, has a most remarkable fixating power for chlorin gas. This absorbing power, especially in the case of dry soil, may be increased two-fold by the addition of a few cubic centimeters of water; the addition of large quantities of water does not increase the absorbing power of the soil. This absorbing power is very manifest with earth containing about 10 per cent. of water, which is about the usual dampness in soil of this kind even in dry weather. It is only necessary to dig down a few centimeters in order to secure the soil containing the required moisture.

The Maimed Farmer

Many agriculturalists who have been maimed in the war are asking whether they will be able to support themselves by farm work in the districts whence they came. About 60 per cent. of these former farmers who have been maimed are not returning to farm work. This is a serious state of affairs for agriculture. Undoubtedly most of these men would be able to return to farming if they were supplied with suitable prostheses. They have only to be convinced of this. With that object in view, Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire recently called together in one of the halls of the Grand Palais the wounded and maimed agriculturalists who were still under treatment in the hospitals of Paris, to show them moving pictures portraying maimed agriculturalists at work. The Service de la main-d'oeuvre agricole has published 50,000 copies of a pamphlet entitled "The Maimed Farmer" which will be distributed among the various sanitary formations for the purpose of showing these men the different kinds of work which they may take up in spite of their condition and also the profits from them. Centers will be established at which prosthetic appliances and apparatus will be on exhibition, together with machinery modified to meet individual needs. A commission will have charge of this work, so that every applicant, with but few exceptions, may secure apparatus properly adapted to his needs.

Demobilizing Medical Students

According to instructions given by Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire, the medical students in the army are to be stationed at sanitary formations in university centers which will make it possible for the students to continue their studies. This arrangement applies to the students of medicine who have served with the colors for more than fifty-three months, that is, those who were incorporated before the mobilization; and also students who have served between fifty and fifty-three months and, who have served at least thirty-two months in an infantry regiment or as division stretcher bearers or who have been wounded.

Marriages

Charles Robert Henry, Lieut., M. C., U. S. Army, New York City, to Miss Addie Marsh Sparks, at Lafayette, Ga., Dec. 24, 1918.

John Simpson Crater, Lieut., M. C., U. S. Army, Bristol, Pa., to Miss Ethel Margaret Steidel of Jeddo, Pa., Dec. 24, 1918.

William Anthony Cooling to Miss Nora Murphy, both of Wilton, Iowa, at Des Moines, Iowa, Dec. 27, 1918.

James Hoyt Kerley, Lieut., M. C., U. S. N. R. F., to Miss Ethel Rae Johnson, both of Brooklyn, January 18.

James Welch Guest, Chicago, to Miss Sarah Pickette Lindsey of Memphis, Tenn., Dec. 28, 1918.

James H. Cotton, Toronto, to Mlle. Audric Rubanni, at Toronto, January 25.

Deaths

Howard Emerson Ames ⊕ **Medical Director, Capt., U. S. Navy (retired),** Washington, D. C.; University of Maryland, Baltimore, 1874; aged 68; who entered the Navy in 1875, and was a member of the Greeley Relief Expedition; was one of the first sent to Kingston, Jamaica, at the time of the earthquake, and was in command of the Chelsea Hospital, during the great fire in Boston; a member of the Association of Military Surgeons of the United States; whose last assignment to duty was at San Francisco, and who was retired for age on August 7, 1912; died in the U. S. Naval Hospital, Washington, December 27.

Andrew Culloden Panton ⊕ Portland, Ore.; University of Toronto, Ont., 1882; aged 62; one of the most prominent surgeons of the Pacific Northwest; for several years professor of anatomy and materia medicine in the University of Oregon, and for more than thirty years a member of the visiting staff of the Good Samaritan Hospital; chief surgeon of the Portland Railway Light and Power Company; a member and president of the State Board of Medical Examiners from 1904 to 1909; died at his home, January 18, from pneumonia following influenza.

Frederick Wilkinson Olcott ⊕ **P. A. Surg., Lieut., U. S. Navy (retired),** Washington, D. C.; College of Physicians and Surgeons in the City of New York, 1884; aged 57; who was retired as passed assistant surgeon in 1911, and by act of Congress was appointed, Feb. 13, 1911, to the rank held by him at the time of retirement and placed on the list of retired officers of the Navy, unlimited, on account of disability in line of duty; a patient at the Government Hospital for the Insane; died in that institution, January 26.

William Smith Lalor ⊕ Trenton, N. J.; University of Pennsylvania, Philadelphia, 1872; aged 70; in 1880 president of the medical societies of Trenton and Mercer County; city physician of Mercer County for six years; a school trustee and school superintendent each for three years; for seven years a member of the board of health, and for a long time vice president of the Interstate Fair Association; died suddenly at his home, January 18, from heart disease.

Charles Henry Riley, Baltimore; University of Maryland, Baltimore, 1880; aged 62; a member of the Medical and Chirurgical Faculty of Maryland; founder of and surgeon to the Woman's Hospital of Baltimore; professor of obstetrics in the Woman's Medical College of Baltimore; president of the board of trustees of the Sheppard and Enoch Pratt Hospital, Towson; died, January 23, from kidney disease following influenza.

Washington Berry Grove ⊕ **Medical Director, Capt., U. S. Navy;** University of Virginia, Charlottesville, 1896; aged 43; who entered the Navy in June, 1897, had been in command of the Norfolk (Va.) Hospital, as executive surgeon from October, 1915, to December, 1918, and had recently been assigned to the command of the U. S. Naval Hospital, Washington, D. C.; died in that institution, January 21.

Elmer Ellsworth Holt ⊕ **Capt., M. C., U. S. Army,** Mena, Ark.; Barnes Medical College, St. Louis, 1898; aged 51; who was on duty at Camp Jackson, Columbia, S. C., and was honorably discharged late in December, 1918, died at his home, January 23, from a gunshot wound, believed to have been self-inflicted, with suicidal intent, while temporarily deranged, as an after-effect of influenza.

Paul Carroll Dennett ⊕ **Lieut., M. C., U. S. Army,** Boston; Tufts College Medical School, Boston, 1916; aged 26; on duty with the 75th Coast Artillery Company, American Expeditionary Forces in France; was taken ill with influenza on the transport, and on his arrival was removed to Base Hospital No. 65, near Brest, where he died, October 16.

Edgar Cox ⊕ Kokomo, Ind.; Medical College of Ohio, Cincinnati, 1890; aged 49; chief of staff of the Good Samaritan Hospital, Kokomo; surgeon to the Union Traction Company of Indiana; city health officer of Kokomo; a specialist in surgery; while visiting at Winter Haven, Fla., was accidentally drowned, January 21.

William Frank Guilfoyle ⊕ **Capt., M. C., U. S. Army,** Philadelphia; University of Pennsylvania, Philadelphia, 1905; aged 36; who was on duty with the American Expeditionary Forces and assigned to the 111th Infantry, 28th Division, and was gassed several times; died in Base Hospital 31, Sept. 2, 1918, from exhaustion.

Guy Benjamin Taylor ⊕ **Asst Surg., Lieut. (j. g.), U. S. Navy,** Lexington, S. C.; Medical College of the State of South Carolina, Charleston, 1917; aged 25; who entered the Navy in October, 1917, and served in France until December last, when he was placed on duty at the U. S. Naval Hospital, Brooklyn; died in that institution, January 21, from pneumonia following influenza.

George Halsted Boylan, aged 74; surgeon in the French Army during the Franco-Prussian war; and decorated with the French Cross of Honor for distinguished service; a practitioner for fifty-four years, and for the last ten years a resident of Baltimore; died at his home, January 21, from pneumonia.

Bradford Ripley Alden Scott ⊕ **Lieut., M. C., U. S. Army,** San Antonio, Texas; University of Texas, Galveston, 1916; aged 30; formerly a member of the staff of the Southwestern Insane Asylum, San Antonio; on duty at Brooksfield, Texas; died at his home, November 12, from pneumonia following influenza.

Henry Courtney Evans ⊕ Youngstown, Ohio; Johns Hopkins University, Baltimore, 1900; aged 46; who served in the French Army, from January, 1916, to July, 1917, and was in charge of a base hospital at Ris-Organi, France, and was invalided home; died at his home, January 23, from pneumonia.

Theophilus Parvin Caplinger ⊕ **Major, M. C., U. S. Army,** Wallace, Ind.; Indiana Medical College, Indianapolis, 1907; aged 38; assistant medical chief at the base hospital, Camp Logan, Houston, Texas; died at that post, January 10, from peritonitis, four days after an operation for appendicitis.

Alfred N. Couture ⊕ Auburn, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1894; California Eclectic Medical College, Los Angeles, 1896; died in White Hospital, Sacramento, Calif., Dec. 26, 1918, from cholelithiasis, for the relief of which an operation had been performed.

John Woodley Wallace ⊕ Concord, N. C.; North Carolina Medical College, Charlotte, 1907; aged 35; one of the organizers of the Concord Hospital; a specialist in surgery; who was operated on in the Charlotte Sanitarium in December for appendicitis; died in that institution, January 9.

John Watson Sawyer, Dexter, Me.; Bowdoin Medical School, Brunswick and Portland, Me., 1894; aged 53; a member of the Maine Medical Association; for two terms a member [illegible] formerly medical examiner (coroner) for [illegible] . died at his home, January 22.

Albert Marinius Larson ⊕ **Lieut., M. C., U. S. Army,** Jasper, Minn.; University of Minnesota, Minneapolis, 1917; aged 29; on duty with the American Expeditionary Forces; died in American Red Cross Military Hospital No. 24, Mossley Hill, Liverpool, England, Oct. 13, 1918, from pneumonia.

Frank Blaisdell ⊕ Goffstown, N. H.; Dartmouth Medical School, Hanover, N. H., 1877; aged 66; formerly president of the New Hampshire Medical Society and of the New Hampshire Surgical Club; died at his home, January 16, from bronchopneumonia, following influenza.

Charles Arthur Robertson ⊕ **Lieut., M. C., U. S. Army,** Hopkinsville, Ky.; Vanderbilt University, Nashville, Tenn., 1917; aged 24; on duty with the American Expeditionary Forces in France; died, November 14, from lobar pneumonia following wounds received in action.

Albert George Bising ⊕ **Major, M. C., U. S. Army,** Weehawken, N. J.; College of Physicians and Surgeons in the City of New York, 1896; aged 48; on duty with the American Expeditionary Forces in France; died in Toul, France, Nov. 2, 1918, from pneumonia.

Frederic Weston Taylor ⊕ Cambridge, Mass.; Harvard Medical School, 1882; aged 62; visiting physician to Cambridge Hospital; a member of the Massachusetts Association of Boards of Health; died at his home, January 19, from heart disease.

Daniel P. Kennedy, Martinsville, Ind.; Eclectic Medical Institute, Cincinnati, 1870; aged 73; formerly mayor of Martinsville; secretary of the Board of Health; a veteran of the Civil War; died at his home, January 16, from cerebral hemorrhage.

Samuel McAlister Mauney ⊕ **Capt., M. C., U. S. Army,** Earl, Ark.; University of Tennessee, Nashville, 1914; aged 27; on duty with the American Expeditionary Forces in France; died at Nantes, France, November 1, from bronchial pneumonia.

James W. Graham, Washington, D. C.; George Washington University, Washington, 1877; a clerk in the patent office, Washington, since 1869; died at his home, January 13.

⊕ Indicates "Fellow" of the American Medical Association.

William John Davison ⊕ Lieut., M. C., U. S. Army, New Castle, Pa.; Medico-Chirurgical College of Philadelphia, 1905; aged 35; on duty at Debarkation Hospital No. 3, New York City; died in New York City recently from pneumonia.

Willis E. White, Mayville, N. D.; Miami Medical College, Cincinnati, 1886; aged 68; a member of the North Dakota State Medical Association; died in a hospital in Fargo, N. D., January 21, from cerebral hemorrhage.

Christian Fry, St. Paul; University of Louisville, Ky., 1874; aged 68; a well known hotel proprietor in St. Paul; formerly a druggist in Indianapolis; died at Miami, Fla., January 19, from cerebral hemorrhage.

Alfred Atwater MacKeen, Whitman, Mass.; Bellevue Hospital, Medical College, 1879; aged 64; a member of the Massachusetts Medical Society; was killed in Whitman, in an automobile accident, January 18.

Frank Abbott Bucklyn, Mystic, Conn.; Medical and Surgical College of the State of New Jersey, Jersey City, N. J., 1890; aged 51; died at his home, Dec. 27, 1918, from pneumonia following influenza.

Lawrence Carl Freeny ⊕ Pittsville, Md.; University of Maryland, Baltimore, 1900; aged 44; a specialist in surgery; died at his home, January 12, from peritonitis following an operation for appendicitis.

Edward Francis Phelan ⊕ Lieut., M. C., U. S. Army, North Brookfield, Mass.; University of Vermont, Burlington, 1909; aged 32; on duty with the British army, overseas; is reported to have died recently.

Claude Matthew Barton, Homestead, Pa.; University of Louisville, Ky., 1901; aged 41; at one time a member of the Medical Society of the State of Pennsylvania; died at his home, January 17.

Clifford Kirkpatrick ⊕ Adrian, Mich.; University of Michigan, Ann Arbor, 1881; aged 63; local surgeon of the Wabash Railroad; died at his home, Dec. 31, 1918, from peritonitis.

James Madison Earnst, Alliance, Ohio; Long Island College Hospital, Brooklyn, N. Y., 1875; aged 70; died in his rooms in Alliance, January 17, from cerebral hemorrhage.

Frank M. Stone, Shenandoah, Pa.; Jefferson Medical College, 1875; aged 60; was found dead in his room in the Mandous Hotel, Shenandoah, December 23.

Thomas Hugh Balfe, Hamilton, Ont.; Queens University, Kingston, Ont., 1892; aged 47; died at his home, November 5, from pneumonia following influenza.

Charles Henry Grimm, Sausalito, Calif.; Harvard Medical School, 1883; a ship surgeon for the Hind-Rolph Company, San Francisco; died at sea, January 3.

Horatio Havelock Hanson, Butte, Mont.; Columbus (Ohio) Medical College, 1881; aged 58; died at the home of his daughter in San Francisco, January 9.

Louis Vitkin, Victor, Idaho; Chicago College of Medicine and Surgery, 1913; aged 29; died at his home, November 9, from pneumonia following influenza.

Charles Dennis Kelley ⊕ Mount Vernon, N. Y.; University of Vermont, Burlington, 1894; aged 59; died at his home, January 17, from heart disease.

James B. Covey, Higginson, Ark.; Vanderbilt University, Nashville, Tenn., 1878; aged 68; died at his home, November 6, from pulmonary tuberculosis.

Almira Janette Wilson, Boston; Tuft's College Medical School, Boston, 1898; aged 58; died at her home, December 30, from arteriosclerosis.

Alexander Clayton Jacobs, Chicago; Marion-Sims Medical College, St. Louis, 1896; aged 44; died at his home, January 5, from influenza.

Henry P. Hargis, McCrory, Ark.; Memphis (Tenn.) Hospital Medical College, 1913; aged 56; died at his home, January 15, from tuberculosis.

Fred G. Ketchum, Springfield, Ill.; Hahnemann Medical College, Chicago, 1893; aged 54; died at his home, about January 9.

William Franklin Pollock ⊕ Pittsburgh; Western Reserve University, Cleveland, 1871; aged 78; died at his home, January 14.

Robert Winfried McCarter, Pittsburgh; University of Pittsburgh, 1896; aged 57; died at his home, January 10.

Adelbert D. Tilden, Riverside, Calif.; Eclectic Medical Institute, Cincinnati, 1876; died at his home, January 11.

Warren Adams Wright, Readfield, Me.; Harvard Medical School, 1862; aged 81; died at his home, January 6.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MISBRANDED NOSTRUMS

How the Bureau of Chemistry Is Protecting the Public Against Fraudulent or Misleading Advertised "Patent Medicines"

M. I. S. T. (Murray's Infallible System Tonic).—Sold by the M. I. S. T. Co., Toledo, Ohio. Analysis showed the product to contain mercury (probably in the form of calomel), emodin (probably from aloes), licorice, methyl salicylate, and compounds of iron, calcium and magnesium. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5890.*]

Great Nerve and Blood Tonic
M.I.S.T. No. 2
M.I.S.T. No. 2 HAS CURED

M. I. S. T. No. 2, Nerve Tonic.—Shipped by the M. I. S. T. Co., Toledo, Ohio. Analysis showed the sample to be a capsule consisting essentially of aloes, licorice, and other plant material, methyl salicylate, calomel and inorganic matter. Falsely and fraudulently adverised.[1] Fine, $25 and costs. —[*Notice of Judgment No. 5898.*]

Imperial Remedy.—Shipped by the Imperial Medicine Co., Houston, Texas. Analysis showed the product to consist essentially of a water-alcohol solution of glycerin, chloral hydrate, carbolic acid, benzoic and salicylic acids. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5893.*]

"Japanese Wild Cherry Cough Syrup," and "Japanese Herb Laxative Compound."—Shipped by Torata Tanaka, who traded as the Japanese Remedy Co., St. Louis. Analysis of the "Cough Syrup" showed it to consist essentially of a water-alcohol solution of plant material and menthol, while that of the "Laxative Compound" was found to be essentially a dilute water-alcohol solution of plant material bearing emodin. Both were falsely and fraudulently advertised. Fine, $75 and costs.—[*Notice of Judgment No. 5836.*]

Dr. E. E. Burnside's Purifico.—Shipped by Charles W. and Pearl B. Diffin, copartners, who traded as the Purifico Co., Buffalo. Samples of "Purifico Nos. 1, 2 and 3" were analyzed. "No. 1" was found to contain 10 per cent. of alcohol, with sugar, small amounts of glycerin, potassium iodid, cinchona alkaloids, piperin and emodin (probably senna). "No. 2" was found to contain 9 per cent. of alcohol, sugars, small amounts of glycerin, potassium iodid, cinchona alkaloids and piperin. "No. 3" was found to contain 14 per cent. of alcohol, sugars, valerian, piperin and tannic acid. All three products were falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5896.*]

Emerald Oil.—Shipped by the Moone Chemical Co., Rochester, N. Y. Analysis showed the sample to be essentially a solution of camphor, carbolic acid and oil of sassafras. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5897.*]

Bristol's Sarsaparilla.—Shipped by Mary Augusta, Edward, and Edward Charles Mears Kemp, who did business as Lanman and Kemp, New York City. Analysis showed the product to consist essentially of a water-alcohol solution of potassium iodid, sugar and plant extractives, with indications of sarsaparilla and arbutin. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5822.*]

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[1] This preparation was analyzed by the Chemical Laboratory of the American Medical Association, and the results published in the Propaganda department of The Journal, July 31, 1915. The matter is reprinted in the pamphlet, "Miscellaneous Nostrums," published by the American Medical Association, price 15 cents.

Dr. Belding's Six Prairie Herbs.—Shipped by the Dr. Belding Medicine Co., Minneapolis. Government chemists reported that the odor and taste suggested that of highly diluted and sweetened whisky, with a very small amount of some indifferent herb or herbs. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5895.*]

Dr. Carter's K. & B. Tea.—Shipped by S. C. Wells & Co., Le Roy, N. Y. Analysis showed the product to consist of senna, liverwort, and wintergreen leaves and juniper berries, with buchu and boneset leaves and possibly uva ursi (bearberry) leaves. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5904.*]

"Brazilian Balm" and "Renal Tea."—Shipped by Benjamin F. Jackson, who traded as B. F. Jackson & Co., Arcade, N. Y. Analysis showed the "Brazilian Balm" to contain essentially water, alcohol, glycerin, sugar, aconitin and berberin, flavored with methyl salicylate. The "Renal Tea" was found to consist of plant material. Both were falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5929.*]

Las-I-Go for Superb Manhood.—Shipped by Wm. J. Bailey and Wm. Veeler, trading as the Lakeside Medicine Co., Chicago. Analysis showed this preparation to be a pill that *was essentially a slight variation of the ordinary Blaud's pill* with strychnin. Falsely and fraudulently advertised. Fine, $200 and costs.—[*Notice of Judgment No. 5932.*]

Blood Tabs.—Shipped by the Reese Chemical Co., Cleveland. Analysis showed the preparation to consist of brownish, sugar-coated *pills, containing carbonate of lime, the* interior being a pasty mass containing sulphates and carbonates of iron and potassium, also iodid of potassium, glycerin, and reducing sugar. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5596.*]

Dr. Mile's Restorative Nervine.—Shipped by Charles Franklin Miles, Andrew H. Beardsley and Albert R. Beardsley, trading as the Dr. Miles Medical Co., Elkhart, Ind. Analysis showed the product to consist essentially of a watery solution of sugar, benzoic acid, arsenic, and bromids and chlorids of ammonium, calcium, potassium and sodium, colored and flavored. Falsely and fraudulently advertised.[1] C. F. Miles fined $200 and costs and A. R. and A. H. Beardsley each fined $100 and costs.—[*Notice of Judgment No. 5891.*]

Kilmer's Swamp Root.—Consigned by Dr. Kilmer & Co., Binghamton, N. Y., to Porto Rico. Falsely and fraudulently advertised (in labels and circulars printed in German, Spanish, Italian, Portuguese and French) as a treatment for Bright's disease, acute nephritis, cancer of the liver, acute and chronic gonorrhea, etc. Court ordered entry of a decree of condemnation and forfeiture, and the product was delivered to Dr. Kilmer & Co., after the concern had paid the costs of the proceedings, and given a bond for $150.—[*Notice of Judgment No. 5946.*]

Homenta.—Shipped by the New York Drug Concern (Laurence E. Cash), New York City. Analysis showed the product to be a dark-colored liquid with a small amount of oil floating on the top or emulsified, and consisting essentially of menthol, thymol, ammonia, sugar (over 61 per cent.), water and alcohol (4.6 per cent.). Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5702.*]

Hinkley's Bone Liniment.—Shipped by the Hinkley Bone Liniment Co., Saginaw, Mich. Analysis showed the sample *to be a water-alcohol solution of volatile camphoraceous oil,* with indications of red pepper. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5945.*]

Kopp's Baby's Friend, Kopp's, and Kopp's Kidney Pills.—Shipped by the Kopp's Baby's Friend Co., York, Pa. Analyses *showed* the "Baby's Friend" and "Kopp's" to be a syrup containing alcohol, morphin, and aromatic substances.[2] The "Kidney Pills" were found to contain chiefly methylene blue, juniper, and unidentified matter. All three were falsely and fraudu*lently advertised.* Fine, $25 and costs.—[*Notice of Judgment No. 5646.*]

Reuter's Syrup.—Shipped by Barclay & Co., New York City. Analysis showed the product to be essentially a water-alcohol *solution of sugar, aromatics, and a cathartic* drug. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5647.*]

Garfield Tea.—Shipped by the Garfield Tea Co., Brooklyn. Analysis showed the preparation to consist essentially of senna leaf and triticum (cough-grass), a small amount of valva (mallow) flowers and fruits, and mint stems; also traces of unidentified plant tissue, and a small amount of a substance resembling manna. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5670.*]

Di-Col-Q.—Shipped by the New York Drug Concern (Laurence E. Cash), New York City. Analysis showed the *product to consist essentially of pine oil, chloroform,* mineral oil, and a green dye. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5703.*]

Sloan's Liniment.—Sold by Dr. Earl S. Sloan (Inc.), Philadelphia. Analysis showed the preparation to be a reddish *liquid containing essentially* turpentine, a light oil having the characteristic of kerosene or coal oil, oil of sassafras, oleoresin of capsicum with indications of pine oil. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5659.*]

Bannerman's Intravenous Solution.—Shipped by William Bannerman & Co., Chicago. Adulterated in that its strength and purity was below that claimed; misbranded because it was falsely and misleadingly labeled.[3] Fine, $25 and costs.—[*Notice of Judgment No. 5664.*]

Cummings Blood Remedy.—Shipped by Edwin D. Richardson, who traded as F. P. Cummings Co., Roanoke, Va. Analysis showed the stuff to contain over 20 per cent. of alcohol with plant *extractives, sarsaparilla, potassium* iodid, and sugar. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5684.*]

Giles' Germicide.—Shipped by the Giles Remedy Co., Chicago. Analysis showed the preparation to be an oily mixture containing chiefly linseed oil, ether and camphor. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5639.*]

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[1] This fraudulently advertised nostrum was analyzed by the A. M. A. Chemical Laboratory in 1916 and the report published in the Propaganda department of The Journal, Sept. 9, 1916. The matter is reprinted in the pamphlet "Epilepsy Cures," price 10 cents.

[2] The "baby killer," "Kopp's Baby's Friend," was analyzed by the American Medical Association in 1905. A list of deaths and poisonings from this product is given in "Nostrums and Quackery," 2d edition.

[3] This preparation was the subject of a report of the Council on Pharmacy and Chemistry which appeared in The Journal A. M. A. Jan. 2, 1915, and is reprinted in the "Propaganda for Reform" ([illegible] Edition).

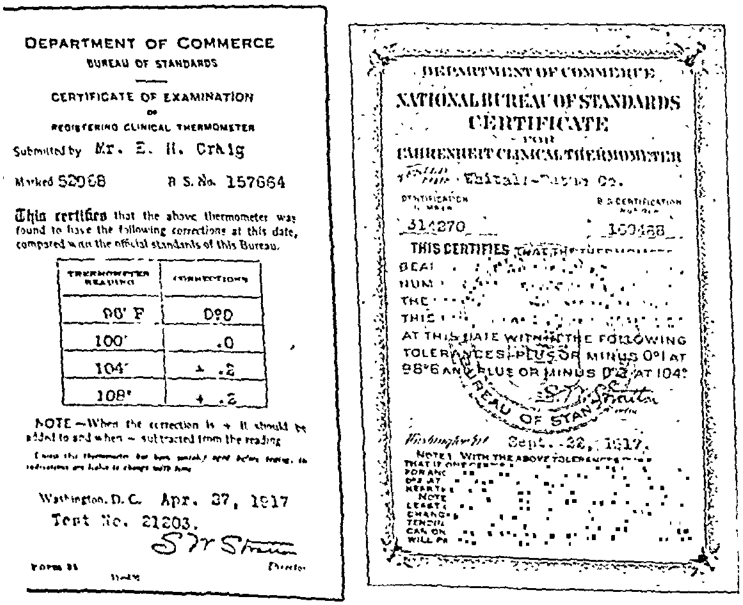
Correspondence

MISLEADING CERTIFICATES FOR CLINICAL THERMOMETERS

o the Editor:—It has been brought to the attention of Bureau of Standards that clinical thermometers are gularly being sold with certificates of accuracy issued by nufacturers and dealers which either direct statement or indirectly by ilful wording lead the purchaser to lieve that the thermometers have en tested or certified by the United ates Government.

An examination of the accompany-g reproductions of certificates indi-tes very clearly the reason for the isunderstanding. Note the similar-y between the older form of govern-ent certificate shown in Figure 1 d the three forms of manufacturer's rtificates shown in Figure 2.

The words "National Bureau of tandards" are very prominent on ese manufacturer's certificates, and e name of the maker is omitted en-rely. In fact, nine out of ten per-ons reading any one of these certifi-ates would fail to note that the omplete statement is to the effect at the clinical thermometer has been ompared with *our standards* corrected by National Bureau f Standards. "Our" refers to the standards of the manu-cturers of the instruments; and while the validity of the atement is difficult to prove or disprove, since certified inical standards may have been furnished the manufac-rers, the reliability of the thermometer depends solely on e manufacturer, who may or may not have carefully tested e instrument. That many manufacturers do not make such reful tests is indicated by the fact that while practically l of such certificates show correct readings at all points, tual tests of the instruments show that only a very small rcentage read correctly at all points on the scale.



DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS

CERTIFICATE OF EXAMINATION
OF
REGISTERING CLINICAL THERMOMETER

Submitted by Mr. E. H. Craig

Marked 52968 B. S. No. 157664

This certifies that the above thermometer was found to have the following corrections at this date, compared with the official standards of this Bureau.

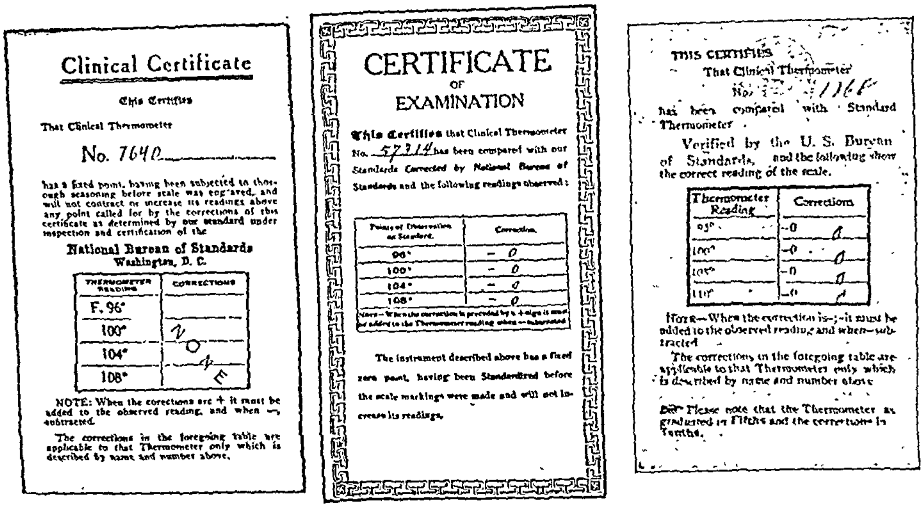
THERMOMETER READING	CORRECTIONS
98° F	0°0
100°	.0
104°	+ .2
108°	+ .2

NOTE—When the correction is + it should be added to and when − subtracted from the reading.

Washington, D.C. Apr. 27, 1917
Test No. 21203.
S W Stratton
Director

DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CERTIFICATE
FOR
FAHRENHEIT CLINICAL THERMOMETER
Whitall-Tatum Co.
IDENTIFICATION NUMBER 314270
B S CERTIFICATION NUMBER 100488
THIS CERTIFIES THAT THE
AT THIS DATE WITHIN THE FOLLOWING TOLERANCES: PLUS OR MINUS 0°1 AT 98°6 AND PLUS OR MINUS 0°2 AT 104°
S. W. Stratton
BUREAU OF STANDARDS
Washington, D.C. Sept. 22, 1917.
NOTE 1. WITH THE ABOVE TOLERANCES

Fig. 1.—U. S. Bureau of Standards certificates for clinical thermometers.



Clinical Certificate

This Certifies

That Clinical Thermometer

No. 7640

has a fixed point, having been subjected to thorough seasoning before scale was engraved, and will not contract or increase its readings above any point called for by the corrections of this certificate as determined by our standard under inspection and certification of the

National Bureau of Standards
Washington, D. C.

THERMOMETER READING	CORRECTIONS
F. 96°	
100°	N
104°	O N
108°	E

NOTE: When the corections are + it must be added to the observed reading, and when − subtracted.

The corrections in the foregoing table are applicable to that Thermometer only which is described by name and number above.

CERTIFICATE
OF
EXAMINATION

This Certifies that Clinical Thermometer No. 57314 has been compared with our Standards *Corrected by National Bureau of* Standards and the following readings observed:

Points of Observation on Standard.	Correction.
96°	− 0
100°	− 0
104°	− 0
108°	− 0

NOTE—When the correction is preceded by a + sign it must be added to the Thermometer reading when − subtracted

The instrument described above has a fixed zero point, having been Standardized before the scale markings were made and will not increase its readings.

THIS CERTIFIES
That Clinical Thermometer
No. 1168
has been compared with Standard Thermometer

Verified by the U. S. Bureau of Standards, and the following show the correct reading of the scale.

Thermometer Reading	Corrections
95°	−0 0
100°	−0 0
105°	−0 0
110°	−0 0

NOTE—When the correction is + it must be added to the observed reading and when − subtracted

The corrections in the foregoing table are applicable to that Thermometer only which is described by name and number above

☞ Please note that the Thermometer is graduated in Fifths and the corrections in Tenths.

Fig. 2.—Types of misleading clinical thermometer certificates issued by manufacturers and dealers.

The Bureau of Standards has not taken the position that nufacturers should not issue certificates for thermometers, ovided the certificates are the result of careful testing, are t deceptively worded, and bear the manufacturer's name.

There are reliable manufacturers turning out high grade instruments who issue their own certificates over their own names. These manufacturers are being done an injustice by their competitors, who, without even testing a thermometer, boldly state that it has no errors and is sold in accordance with the requirements of the United States Government.

Only recently the bureau was requested to replace or refund the money paid for a clinical thermometer which the purchaser had inferred from the certificate (one of those shown) had been tested and guaranteed by the government.

The certificate dated Sept. 22, 1917, shown in Figure 1, is *the form now* issued by the National Bureau of Standards unless the other form is specifically requested. The distinctive form should be noted. The seal of the Bureau of Standards appears over the face of the certificate. Up to this time no counterfeits of this new form have been brought to the bureau's attention.

The Bureau of Standards has issued a publication (Circular No. 5) on the testing of clinical thermometers, which will be sent to any one sufficiently interested. The publication answers more in detail some of the questions touched on in this letter and contains considerable additional information in regard to clinical thermometers.

The bureau hopes that you will consider this matter of sufficient interest to your readers to warrant publication of this letter, or otherwise giving publicity to this question in THE JOURNAL.

S. W. STRATTON, Washington, D. C.
Director, Bureau of Standards, Department of Commerce.

ADVANTAGE OF PRINTING ON ALTERNATE PAGES

To the Editor:—The busy physician nowadays resorts a great deal to the collection of data under specific heads for future reference, and for this reason is prone to take clippings from medical journals and file them under titles of subjects in matters wherein he is particularly interested. Only in those cases in which the physician has at his disposal paid clerical assistants for the purpose of this classification could he, in the present situation, have made a card index to articles in medical journals. Speaking from my personal experience, I find it much more satisfactory to cut out the article and file it in an envelop under the title of the subject. This being the case, it is somewhat troublesome in cutting out a valuable article to find on the opposite side of the page all or part of another equally valuable article on a different topic, which necessitates having a typewritten copy of the page made to go with the second article.

Book Notices

Surgical Treatment: A Practical Treatise on the Therapy of Surgical Diseases for the Use of Practitioners and Students of Surgery. By James Peter Warbasse, M.D., Surgeon to the Wyckoff Heights Hospital. In 3 volumes. Cloth. Price, $30 per set. Philadelphia: W. B. Saunders Company, 1918.

A three volume work such as this by a single author is a large undertaking; but Dr. Warbasse seems to have succeeded in giving us a rational and comprehensive presentation of surgical treatment. If there is any criticism to be made of his work, it is that there is so much included that the author's individuality and opinion on the various subjects considered is in many cases not easily ascertained. The work has avoided a large amount of duplication which usually occurs in works of composite authorship. Volume I presents the theory and principles of surgery, the treatment of lesions of the blood and lymphatic vessels, fractures and dislocations, tumors, and diseases of the bones, joints, muscles, tendons, nerves, and of the skin and its appendages. Volume II includes the surgery of the head, spine, neck, thorax, breast and abdomen. As stated in the preface, the work contains few references to the discoverers of methods and of instruments, because a continued search of the literature has revealed the fallacy of proper name nomenclature in surgery; most instruments and procedures bearing proper names were used before the time of the individual whose name they bear. This is a matter requiring good judgment, since we are governed in these matters largely by general usage. For example, the Murphy drip, although not original with Dr. Murphy but popularized by him, is better described by the term "drip method proctoclysis." On the other hand, incision of the pylorus in pylorospasm has come to be known as the Rammstedt operation and is so described in indexes. Dr. Warbasse does not call this the Rammstedt operation, although he describes the method. Incidentally he credits it with some beneficial results without, however, stating any of the possible dangers.

It is a question whether it is advisable to state (page 299) that "self healing" of syphilis occurs, and that "an otherwise healthy person who leads a hygienic life may recover from syphilis without treatment," since such cases are at best of extremely rare occurrence. In his description of tests for lysis and agglutination preliminary to blood transfusion, the author does not describe the methods which recently have been given the greater preference by military surgeons. He agrees with most surgeons that the most simple, useful and effective method of transfusion is the citrate method.

The books are well printed and excellently illustrated with numerous good halftones and a number of colored illustrations. Incidentally there are a few illustrations that might well be omitted, since the objects illustrated are common. Figure 5 illustrates a bedpan; Figure 6, a douchepan; Figure 164 is just a plain, common, ordinary icebag. It is certainly desirable to use illustrations freely in medical, as well as in other literature; but this, like anything else, may easily be overdone. However, these are minor criticisms of what is on the whole a well prepared, thorough and exceedingly practical work.

Oxford Loose-Leaf Surgery. By Various Authors. Edited by F. F. Burghard, M.S., F.R.C.S., Colonel, A. M. S., Lecturer on Surgery and Surgeon to King's College Hospital, London, and Allen B. Kanavel, A.B., M.D., F.A.C.S., Lieut. Col. U. S. A., Associate Professor of Surgery Northwestern University Medical School, Chicago. In five volumes. Volume One. Cloth. Price, $32.50 per set. Pp. 971, with 354 illustrations. New York: Oxford University Press, 1918.

The first volume of this system of surgery deals with general surgery, among the contributors being Percy Sargent, D'Arcy Power, F. F. Burghard, W. Sampson Handley, Robert Jones, and among American surgeons; Dunlap Pearce Penhallow, N. M. Percy and Richard Lewisohn. This volume concerns such subjects as the principles and technic of aseptic surgery, gunshot wounds, the Carrel-Dakin method, antiseptics, anesthetics, amputations, blood transfusion, ligations, surgery of the lymphatics, and injuries of the joints. In the preface the editors state that originality and individuality will be sought rather than a colorless enumeration of operative procedures, and that categorical enumeration of operations of merely historical interest will be avoided. Nevertheless, much of the material in this volume is of the same stereotyped character as occurs in most textbooks on surgery. This, of course, refers particularly to the discussion of the elementary factors and the ordinary ligations and amputations.

Chapter V, on the subject of syphilis, has in it very little of special surgical interest, and might just as well appear in any book on any phase of medicine, being simply an ordinary statement on the subject. This section is not complete, and far better statements on syphilis appear in many textbooks. This applies particularly to that portion of the article referring to tabes and to the section on the luetin test. It would appear to be time already for a new loose leaf section on surgical syphilis. Chapter I of the second section, concerning infiltration and anesthesia, is practically a full abstract of Barker's papers published in the *British Medical Journal* in 1904 and 1907, together with the present experiences of the writer, J. W. H. Houghton. Chapter IV in this section, by P. L. Guiseppi, on scopolamin-morphin anesthesia in obstetrics, asserts that such anesthesia is practically safe with ordinary precautions, and that the only danger is that of stillbirth. This chapter would also appear to call for a new loose leaf section, since it is at least a few years out of date. Chapter VII of this section is entitled "Diet in Surgery," certainly a large title for three pages of material consisting of a few words on rectal feeding and the Lenhartz diet, and from twenty-five to thirty lines on diabetic diet before operation. Most of the remaining sections of the book are practical and well illustrated, following, however, the usual lines for books on general surgery. An exception is the eighth section on injuries of the joints. This is prepared by Sir Robert Jones of Liverpool, and is characteristically terse and authoritative, probably the most valuable section of the first volume.

This textbook is an innovation in medical book publishing, although the loose leaf idea has already been applied to an encyclopedia of general nature. Such success as it achieves will probably depend on the character of the supplements to be issued, their frequency, and the proper use of such supplements by libraries and subscribers. On the whole, the book is well printed and illustrated and marks the beginning of what must be regarded as an interesting venture in medical publication.

Gun-Shot Fractures of the Extremities. By Joseph A. Blake, *Lieutenant-Colonel, Medical Corps, U. S. A.* Paper. *Price, 4 francs.* Pp. 136, with 40 illustrations. Paris: Masson & Cie, 1918.

This is one of the most instructive monographs summarizing the treatment of gunshot wounds. Dr. Blake's experience peculiarly fits him to write such a book. His wide experience as a general surgeon before the war and his opportunity of studying this subject during the war, coupled with his ability to weigh all the evidence and arrive at a judicial opinion, give his conclusions great weight. The monograph is divided into two sections: The first one treats of the general topics of the mechanism and varieties of gunshot fractures, the repair of fractures, the transport and operative treatment of fractures in general, and mechanical treatment. The second section, on special fractures, takes up the subject of diaphysial fractures and fractures and wounds of joints. The book is the result of an intensive study covering four years and a large amount of material, and of the work Dr. Blake did in the American Ambulance Hospital and later with the American Expeditionary Forces. He presents rather fully the great value of the proper handling of fractures of the extremities for transport, and emphasizes the importance for this purpose of the Thomas traction splints for both the upper and the lower extremities. He describes fully the greatest lesson that has been taught to surgeons by this war, the possibility of sterilizing a gunshot wound by clean dissection and by removing all of the injured tissue and foreign bodies, making it possible to secure in this way primary union in from 80 to 90 per cent. of the cases if this is properly done in the period of contamination in the first six or eight hours after receipt of the injury. He points out the necessity of saving all attached bony fragments, and the futility of bone plating and the leaving of foreign material in the wound.

The discussion of fractures of the femur is accompanied by excellent illustrations of the modified Thomas traction leg splint and of the Hodgen leg splint, and of suspension frame for fractures that was devised and perfected at the American Ambulance Hospital, planned for the purpose of suspension and for traction apparatus on the limbs, and so arranged that direct extension and lateral traction can be employed at the same time.

The chapter on fractures and wounds of the joints is of special value. Blake states that the experience during the war has unequivocally proved that the ideas formerly prevalent concerning the extreme susceptibility of the synovial membrane were erroneous, and describes how by good technic in the removal of foreign bodies and injured tissues these joint wounds can be mechanically sterilized and closed with an excellent prospect of securing primary union and good functional results. In civil practice we of course do not have the enormous number of gross traumatisms of the extremities that we encounter in time of war; but essentially the same sort of injuries of bones and joints occur in railroad accidents and in industrial injuries, in automobile accidents, etc., and these require the application of the same general principles that have been emphasized by the experience of the war.

It would be of advantage to general surgeons who have to assume the responsibility of handling these serious injuries to read Blake's monograph and give their patients the benefit of the great advances that have been made in handling these injuries through the experience gained by surgeons in this war.

Tumours, Innocent and Malignant: Their Clinical Characters and Appropriate Treatment. By Sir John Bland-Sutton, LL.D., F.R.C.S., Surgeon to, and Chairman of the Cancer Investigation Committee of, the Middlesex Hospital. Sixth edition. Cloth. Price, $7. Pp. 790, with 383 illustrations. New York: Paul B. Hoeber, 1918.

In our note on the fourth edition of this work, it was pointed out that it was not a book that would give satisfaction to a pathologist, since the discussions of the histology of tumors are not satisfactory, and the illustrations are line drawings and woodcuts of only average workmanship. The sixth edition has been somewhat extended by the addition of new material, but no improvement has been made in these two primary weaknesses. Some eighty new illustrations have been added, but these are of the same class as the earlier illustrations. We would emphasize what was said in our previous review, viz., that the lists of literature appended to each chapter are of little value since the references are incomplete and confined almost wholly to a few British publications with only here and there a reference to literature of other countries. The book is interesting primarily for its general consideration of the various types of tumors, particularly with reference to comparative pathology. As the author says, without the aid of comparative pathology, attempts to catch the deeper meaning of many tumors are as difficult as endeavors to decipher a palimpsest in which the first characters, written in an unknown tongue, have been imperfectly removed from the parchment, and are allowed to mingle with the second inscription.

Mental Diseases: A Handbook Dealing with Diagnosis and Classification. By Walter Vose Gulick, M.D., Assistant Superintendent Western State Hospital. Cloth. Price, $2. Pp. 142, with illustrations. St. Louis: C. V. Mosby Company, 1918.

The subtitle states that this book deals with diagnosis and classification. It does, to the extent of about eighty-seven pages of text. The introduction informs us that "this little book" is a response to a need for "concise, digested information." But brevity is not a synonym for conciseness. The contribution is brief but the style is not concise. Nor is the information digested. This "handbook" is about the size of a quiz compend, without the latter's condensed and systematic information. Those desiring a sketchy smattering of not very accurate knowledge of mental disorders may perhaps be satisfied with this work. Thirty-five photographs of insane patients adorn the work but fail to illuminate the subject.

Social Medicine, Medical Economics and Miscellany

EPIDEMIC INFLUENZA IN THE MEDICAL AND SURGICAL HISTORY OF THE CIVIL WAR

LOY MCAFEE, M.D.
Contract Surgeon, U. S. Army; Secretary, Board of Publications, and Assistant, Division of Medical and Surgical History, Surgeon-General's Office
Washington, D. C.

As part of the work in the Office of the Surgeon-General, preliminary to collecting data for the forthcoming medical and surgical history of American participation in the European war, a digest was made of the preliminary volume ("Circular No. 6") of the "Medical and Surgical History of the War of the Rebellion," and of the six large volumes (three medical and three surgical) that constitute the history proper. The object was to make this material available in simple outline to those persons delegated by the Surgeon-General to formulate the forthcoming history. This would facilitate comparison and quick reference regarding the general plan and scope of the earlier work, the epidemics encountered, and the various other questions that might arise in this connection.

Among other aspects of this research was the one involving a study of the epidemic diseases encountered during the Civil War as compared with those that have characterized the present conflict. Quite naturally, in view of the recent pandemic, influenza received special attention in this regard.

HISTORY OF INFLUENZA

In his "History of Epidemics in Britain" (two volumes. 1894), Creighton gives the history of influenza, a disease which, under various names, can be identified clearly enough in certain instances, even in the earliest times.

As early as the year 1554, we are told, the Venetian ambassador in London called the sweating sickness of 1551 an influenza. This is the Italian form of the Latin "influxio," meaning catarrh. Creighton thinks the term was the outgrowth of the old humoral pathology.

In 1712 the "new ague" appeared, to which the French applied the name "la grippe," the Germans "Galanterie-Krankheit" and "Mode-Krankheit," all meaning "the disease *à la mode*," the first figuratively.

In 1743 the Italian word "influenza" first appeared in England, when the rumor of a great epidemic at Rome and elsewhere in Italy, called by this name, reached England a month or two before the disease itself.

This epidemic was of short duration, and with its passing the Italian name, likewise, was generally forgotten until 1762, when some one suggested that the disease then epidemic was "the disease called influenza" twenty years before. Another epidemic, in 1782, served to bring the name into general use. After the great epidemics of 1833 and 1847, more than a generation passed with little disturbance from this source. Then came the great pandemic which began in Russia in 1889 and spread from country to country, with recrudescences, lasting until 1894.

In our own country it seems that influenza has appeared in sporadic, epidemic and pandemic form. The first epidemic described, which swept the country and extended to the West Indies, was that of 1647, recorded by Noah Webster. In 1655 there was a second. Others, in 1789 and 1807, were described by Benjamin Rush and Daniel Drake, respectively.

In this country, as elsewhere, the disease has appeared under different names, and, as in England, the term "influenza" became both "popular and vague."

It is not surprising, therefore, to find, in the "Medical and Surgical History of the War of the Rebellion," a confusion of the terms "acute catarrh," "acute bronchitis," and "epidemic influenza," as applied to affections presenting the general symptomatology, with the same variations in detail, as have been noted in the present pandemic.

RELATIONSHIP BETWEEN INFLUENZA AND EPIDEMIC CEREBROSPINAL MENINGITIS

It is interesting, in this connection, to learn that observers during the Civil War noted an apparent relationship between what was then called "spotted fever" (epidemic cerebrospinal meningitis) and epidemic influenza.

The American Medical Association appointed a "committee on 'spotted fever, so-called,'" an epidemic of which was then (1863) in progress in Philadelphia and vicinity. The report of this committee appeared in the Transactions of the Association in 1866.

We find (p. 337) that "when the attention of the profession in Philadelphia was called to the existence of spotted fever, there was prevailing in that city a severe and widespread epidemic of *influenza*, or epidemic catarrhal fever. . . . Several medical men in active practice were at once struck with the resemblance of many of the symptoms of the two diseases, and were led to inquire if influenza might not be but a milder manifestation of that epidemic influence which in its intensity produced spotted fever. Nor, it will seem, were their symptoms very dissimilar save in degree. Suddenness of attack, intense pain in the head and back, great nervous depression associated with marked hyperesthesia, great precordial distress, nausea and vomiting were common to the two diseases. So, too, were certain incidental phenomena, such as the occurrence of irregular forms of cutaneous eruptions, roseola and urticaria, occasional glandular swellings and rheumatoid affections of the joints." Some acknowledged and some ridiculed the idea of the resemblance. Some regarded influenza and spotted fever as "two diseases as in no way differing but in degree and seat of their urgent symptoms." One contemporary writer called spotted fever "malignant influenza." This writer, Dr. North, proposed the following classification: When the disease exists with simple inflammation of the air passages, i. e., ordinary influenza, "febris catarrhalis"; when with pleurisy or pneumonia, "febris catarrhalis synocha major"; when in severest form, "febris catarrhalis maxima, or spotted fever."

Canstatt, in "Die Specielle Pathologie und Therapie," considered spotted fever as "epidemic catarrh complicated with putrid or adynamic fever."

It will be interesting in this connection to note the results of studies, now being made, of the brains and spinal cords of patients who have succumbed to influenzal pneumonia during the recent epidemic.

INFLUENZA DURING THE CIVIL WAR

In the third medical volume of the "Medical and Surgical History of the War of the Rebellion" (p. 725 *et seq.*), the following statements appear with reference to epidemic catarrh:

"During the fourteen months, May, 1861, to June, 1862, inclusive, 85,677 cases of 'catarrh,' six of which terminated fatally, were reported among the white troops. No particulars of these cases have been recorded." The term "acute bronchitis" was substituted for "catarrh" on the monthly reports of sick and wounded. Among the white troops 134,397 cases were reported, and among the colored troops, 9,869. Throughout the several years covered by the statistics, the average annual rate was 61.4 per thousand strength among the white and 53.8 among colored troops. The quartering of the troops in unaccustomed circumstances as to climate and general surroundings, the crowding, the fatigue, etc., were thought to exert an influence in the causation of the epidemics. "Its raw material, under the exposures of the bivouac, became affected with catarrh associated with great disturbance of the system and unusual prostration, which was due rather to the unaccustomed fatigues and privations undergone by the men than to any epidemic influence.".

The surgeon of the Twentieth Indiana, located in Maryland, reported that soon after camping at Fortress Monroe (September, 1861), an epidemic of influenza appeared in his regiment. The cough was violent and persistent, but the constitutional disturbance, according to the surgeon, was slight. This epidemic was preceded by another that affected a neighboring camp. In the latter epidemic, which was described by the surgeon in charge in the *Medical and Surgical Reporter*, Philadelphia (**7**:189, 1861-1862), the respiratory passages, as a rule, were not severely affected, although in some cases uneasiness in the chest, and the expectoration of blood, were noted. The disease was marked by a severe and almost invariable pain in the frontal region, which sometimes extended over the whole head, by pains in the loins, aching in the lower extremities, and pain in the neck and arms. Intestinal disorder also was prominent, evinced by severe diarrhea, with frequent watery, bloody and mixed stools, tenesmus and tenderness of the abdomen. There was great debility, but there was not great febrile disturbance. The epidemic lasted more than two weeks.

Another surgeon, from a neighboring camp, reported an epidemic at about the same time, nearly every man in the regiment being more or less affected by it. In this instance, unlike the one just mentioned, the disease was characterized by severe aching, throbbing pains in the head, back and limbs, bronchial inflammation and hepatic disorder. In all cases, in its severest phases, it was followed by unusual physical debility and tedious convalescence.

"Acute bronchitis," the term later applied to "epidemic catarrh," was held responsible for 168,715 cases of sickness, among the white troops, with 650 fatalities—an average annual rate of 76.8 cases and 0.27 deaths per thousand. Among the colored troops there were 22,648 cases, and 255 deaths, giving an average annual rate of 123.5 cases and 1.33 deaths, and a mortality rate of 1.12 per cent. of the cases.

The association of pneumonia with influenza, in these epidemics, though not unknown, was evidently not so frequent an occurrence as to render the mortality very striking.

We find (p. 783) that the records contain 135 cases of lobular pneumonia secondary to acute bronchitis or other morbid processes in the lungs in men whose vitality was reduced by previous attacks of disease.

The Feebleminded and Prostitution

In the *Social Hygiene Monthly* for October, Katherine Ostrander discusses the menace of the feebleminded prostitute. Figures are given of the results of the working of the laws and regulations in Michigan. Six hundred and seventy-five women patients were admitted for venereal treatment throughout the state. Of these, 391 were discharged as being no longer in an infectious state, leaving 284 women under treatment. Of the 391 women, 385 were acknowledged or unacknowledged prostitutes. Of the discharged women, twenty were recommended for care in the Michigan Home and Training School at Lapeer, but could not be taken because of lack of room. Sixty of the women were found to be retarded mentally, but not to a degree making institutional care necessary. They are high grade morons, physically attractive, and appear normal, but are incapable of deciding for themselves right and wrong and are a constant menace. Of the 391 discharged, seven, or 2 per cent., were returned to the hospitals reinfected. All but one of these were feebleminded. The figures given of the disposition of the discharged women shows the great difficulty of making any permanent progress in the spread of venereal diseases through the handling of these women without permanent segregation and custodial care. In psychopathic clinics established in Detroit and some other cities of the state, out of 247 women examined, forty-five were pronounced totally feebleminded and unable to adapt themselves to society, and though twenty of them were diagnosed as imbeciles, they could not be institutionalized through lack of room in the institutions of the state, and will return again to their old haunts. Feebleminded and psychopaths not of a degree to demand institutional care amounted to 35 per cent. of the whole, and 35 per cent. of these, it is said, have little hope of complete reformation without constant personal supervision. Ostrander says that the most difficult of all social problems is the high grade feebleminded person, who looks normal, but is restless, lacks power of decision, has no will, no tenacity or power of concentration and will always be carried by any will stronger than her own.

Medicolegal

Expert Testimony as to Value of Services

(Terrill v. Fotheringham (Wash.), 173 Pac. R. 748)

The Supreme Court of Washington, in affirming the judgment rendered in favor of the plaintiff, a physician, does not state the amount he sued for, nor the amount for which the judgment was rendered, but says that he sued the executor of the estate of a former patient on account of services rendered to such patient in his last illness, which account consisted, not of unit prices, but an aggregate sum, and, not being satisfied with the amount the trial court allowed him, he appealed. The patient was a resident of Seattle who went to San Francisco, where he received the professional services of the plaintiff. The trial was without a jury and there was no dispute as to the facts or findings, except as to the value of the services.

The plaintiff applied for a commission to take the depositions of five physicians in San Francisco as to the value of the services. The court refused except for three, other than the plaintiff, and this was assigned as error. It is apparent that this was a matter within the discretion of the trial court with reference to something that was neither exact nor scientific. It possessed no element of knowledge, but consisted of pure opinion. Such expert evidence, even if uncontradicted, is not conclusive, but merely advisory—only a guide.

In this connection, it may be noticed that, as against these three, there were two witnesses for the defendant. Two physicians of Seattle testified for the defendant, and this was charged as error, on the theory that a physician residing elsewhere than in San Francisco was not qualified to testify, since the services were rendered there. Whatever may be the general rule in this regard was not controlling here, for an understanding of the nature and kind of disease, known of by all physicians, in respect to the care and attention it exacts from the attending physician, could with ease be, and was, testified to by these two physicians, thus being of help to the court in weighing and appropriating the advisory testimony of all as to the value of the services, the ultimate concern of the court. If, in testifying, they, who must have some general idea of such values, do express themselves as to the amount, how shall it be well claimed as error? For at most it would in this respect be only immaterial, a quality which in cases tried to the court will find no reflection in the judgment reached. There was no mistake of law by the court in the trial.

Hospital Not Liable for Medical Superintendent's Breach of Contract

(Davin v. Kansas Medical, Missionary & Benevolent Association (Kan.), 172 Pac. R. 1002)

The Supreme Court of Kansas holds that a charitable hospital corporation is not liable in damages for the failure of its medical superintendent to comply with a contract made by him for the care of a patient being treated in the hospital. The court says that the defendant was a charitable corporation organized under the laws of Kansas for purely philanthropic purposes, and conducted a hospital, or sanatorium. The plaintiff was afflicted with melancholia and was, by her husband, taken to the defendant's hospital. He stayed with her a couple of days, when he was advised by the defendant's medical superintendent to go home and stay away from the plaintiff. He agreed to do so on condition that a nurse be placed in charge of the plaintiff at all times, and that she be not left alone. To this the medical superintendent assented. A special nurse was placed in charge of the plaintiff, but the nurse did not remain in the room with the plaintiff at all times. The nurse slept in the hall near the door to the plaintiff's room. While the nurse was so sleeping, the plaintiff got out of her bed, passed through an open window, and fell to the roof of a porch below and injured herself. She brought this action to recover damages for the injuries sustained by her. There was no allegation in the petition, and there was no evidence to prove that the defendant did not exercise reasonable care in the employment of its physicians and attendants. The jury returned a verdict in favor of the plaintiff, and answered special questions to the effect that no one received profits or dividends from the earnings of the defendant; that the negligence of which the defendant was found guilty was in not complying with the special contract entered into with Mr. Davin in supplying a special nurse in constant attendance on Mrs. Davin at all times; that the special nurse placed in charge of Mrs. Davin was the servant or agent of the defendant guilty of the negligence found; that the medical superintendent and the special nurse had reason to believe that the plaintiff would be likely to injure herself; that the medical superintendent had been informed by a physician of the nature of the case. But the court holds that the plaintiff could not recover under the facts found by the jury, and affirms a judgment rendered for the defendant notwithstanding the verdict, which was set aside. The medical superintendent made the agreement, and he might be liable personally; but the plaintiff argued that because he failed to comply with his agreement the defendant was liable. But there was no reason why the defendant should be liable for the medical superintendent's negligence, any more than it should be liable for the negligence of the nurse who was looking after the plaintiff. Under *Nicholson* v. *Hospital Association*, 97 Kan. 480, 155 Pac. 920, wherein the court said that charitable associations conducting hospitals are not liable for the negligence of their physicians and attendants resulting in injury to patients unless it is shown that the association maintaining the hospital has not exercised reasonable care in the employment of its physicians and attendants, the defendant was not liable for the negligence of its medical superintendent.

Liability for Negligence in Case of Scarlet Fever

(Tadlock v. Lloyd (Colo.), 173 Pac. R. 200)

The Supreme Court of Colorado affirms a judgment for $400 damages in favor of the plaintiff for the alleged negligence of the defendant, a physician, in failing to give proper attention to the plaintiff's child, aged 5 years, resulting in the boy's death. The court says that evidence was produced to the effect that the defendant called as requested the first time, and diagnosed the disease as scarlet fever; that no instructions were given as to the care of the child, except that some pills were left with the mother to administer, with directions to bathe the child frequently, that the next day the defendant was requested to call and see the child again, but did not do so, saying that the disease must run its course; that on the day after that he was called on to visit the child in the morning, in the afternoon and in the evening, and on each occasion declined to make the visit, but later, after urgent request, went to the house, the child dying shortly after his arrival. From the testimony of a lay witness the child strangled to death from an accumulation of phlegm in its throat. A nonprofessional witness also testified that the defendant said, as he was attempting to remove the obstruction from the throat of the child, "It's too late; I ought to have come when you called me." On the other hand, the defendant introduced testimony contradicting specifically and in detail every material matter relied on by the plaintiff for a recovery of damages, thus making issues of fact the determination of which by the jury should not be disturbed by this court.

It was urged that even though the negligence of the defendant was established, there was nothing in the record to show that the death of the child was the proximate result of such negligence. But that the negligence alleged was the proximate cause of death was a question, under proper instructions, for the jury. The jury determined that the proximate cause of the death of the child was the negligence of the defendant; and, there being testimony tending to support that conclusion, this court should not interfere with the finding of the jury. It must be remembered that this case was not founded on active malpractice, but on the negligent failure to give proper care and attention to diagnosis and treatment of the patient. The plaintiff predicated his action on the theory that the defendant failed to inform himself and give proper attention to the case. There was no claim that the defendant did not possess skill, knowledge and experience in his profession, or that he made error in diagnosing the ailment. It was in no sense an error of judgment, but an absolute failure to attend on the patient and secure data on which to base any judgment, that constituted the ground of the complaint. There was abundant testimony that the defendant made no effort to inform himself of the condition of his patient, or the progress of the malady, and if damage resulted therefrom he was liable. In considering the amount of testimony to show that the death of the child was the proximate result of the alleged negligence, there must be taken into consideration the difficulty, if not the actual impossibility, of conclusively demonstrating the cause of death. The code of ethics among physicians is frequently a bar to securing positive testimony on questions such as were here involved.

An instruction was given that the fact that a physician was shown to have skill in his profession raised no presumption that he exercised such skill in a given case. This, if applicable, would probably have constituted error, for all persons are presumed to have properly performed the duties that are imposed on them by law, and this instruction deprived the defendant of such presumption. But it was to e noted that this action was founded solely on the fact that e defendant failed and neglected to attend on his patient, although urgently and repeatedly requested to do so. The case involved no question of skill or the exercise of skill by the defendant. *The instruction had no application to the case,* and the giving of it did not constitute prejudicial error.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

January, 1919, **9**, No. 1

Working Program Against Influenza. Editorial Committee of American Public Health Association.—p. 1.

*Teamplay in Public Health. G. E. Vincent.—p. 14.

Work of Illinois Influenza Commission. R. A. O'Neil, St. Clair Drake and J. O. Cobb.—p. 21.

*Distribution of Influenza by Direct Contact—Hands and Eating Utensils. C. Lynch and J. G. Cumming.—p. 25.

Organization of Federal, State and Local Health Forces. A. J. McLaughlin,—p. 38.

Ultimate Benefits to be Derived from Influenza Epidemic. L. I. Harris.—p. 41.

What We Really Know About Influenza Epidemic. M. Nicoll, Jr. —p. 43.

*Etiology of 1918 Pandemic of Influenza. W. H. Park and A. W. Williams.—p. 45.

Influenza Epidemic As Shown in Weekly Health Index. W. H. Davis. —p. 50.

Public Schools of Chicago During Influenza Epidemic, 1918. H. O. Jones.—p. 62.

Teamplay in Public Health.—Abstracted in The Journal, Jan. 4, 1919, p. 67.

Studies of Influenza Epidemic.—The papers by Drs. Lynch and Cumming and Drs. Park and Williams were abstracted in The Journal, Dec. 18, 1918, pp. 2174 and 2175.

Archives of Internal Medicine, Chicago

Jan. 15, 1919, **23**, No. 1

*Occurrence of Inverted and Diphasic P-Waves in Lead III of Human Electrocardiogram. E. P. Carter and A. M. Wedd.—p. 1.

*Epidemic Cerebrospinal Meningitis at General Hospital No. 6, Fort McPherson, Ga., Winter of 1917 and 1918. C. N. B. Camac and K. M. Bowman.—p. 17.

Essential Nature of Antitryptic Activity of Normal Serum and Physiologic Function of Pancreatic Ferments. H. Wago.—p. 33.

Chronic Capillary Cyanosis. L. Langstroth.—p. 56.

*Goiter Among Draft Men from Northwest. E. P. Brendel and H. M. Helm.—p. 61.

*Nonspecific Therapy in Arthritis and Infections. D. M. Cowie and H. Calhoun.—p. 69.

Inverted and Diphasic P-Waves in Electrocardiogram.—According to Carter and Wedd the administration of digitalis may lead to an alteration in the negativity of the P-wave in Lead III of the human electrocardiogram. Three instances of the presence of a persistently inverted P-wave, in Lead III, uninfluenced by vagus pressure, atropin, digitalis or deep breathing are recorded. Excepting in the presence of a permanently negative P_3, the electrical negativity of the inverted P-waves in Lead III is reversed by atropin. Additional evidence is cited showing the effect of the vagi on a change in the location of the pacemaker in Lead III.

Epidemic Cerebrospinal Meningitis at Fort McPherson.—Ten cases of epidemic cerebrospinal meningitis were treated by Camac and Bowman, with two deaths. Kernig's sign was present in five cases, opisthotonos in three cases, orthotonos in two cases, delirium in six cases, headache in eight cases, and fever in eight cases (in four of these cases the temperature was 104 F. or more). The pulse was slow in comparison to the temperature, only one case showing the pulse above 103. Respirations were slightly increased. Vomiting was present in six cases. Lumbar puncture showed a cloudy fluid in seven cases; in three cases it was clear. A chill occurred in three cases. During the course of the disease the following findings were recorded: Serum sickness occurred in every patient treated except two, and one of these lived only four hours after his first treatment. The other patient was a negro, and he developed pain in ankles and testicles; there was no rash. Of the six cases in which *opisthotonos* was absent at the onset, it developed later in two. Orthotonos was a common feature. Of the five cases in which the Kernig sign was absent at the onset, it developed in two. Herpes labialis occurred in three cases. Purpura and rash, except that from serum sickness, was absent in all cases. The "spotted" rash described as one of the features of this disease did not occur in any of the cases. Three patients required catheterizing. All patients had a febrile temperature curve.

Goiter Among Draft Men From Northwest.—Among 8,951 men coming from certain of the northwestern states, notably Oregon and Montana, there were thirty-seven cases of goiter. The authors regard this as being a high percentage.

Nonspecific Therapy in Arthritis and Infections.—Following the injection of a foreign protein (typhoid vaccine) there is a sudden disappearance of the polymorphonuclear cells of the blood, which are soon replaced by an increase amounting in most cases to a hyperleukocytosis. The polynuclears are young and the presence of myelocytes and of nucleated reds points to renewed activity of the respective mesenchymal tissues. The foreign protein seems to have stimulated all the mesenchymal tissues simultaneously. The order in which they are usually called on in infectious processes is, first, the neutrophil leukocytes without immature forms; second, metamyelocytes; third, myelocytes; fourth, promyelocytes; and fifth, megaloblasts. Cowie and Calhoun are inclined to the opinion that during the leukopenia stage the polynuclears leave the blood stream and enter the tissues, and that the subsequent increase in cells is due to an overproduction of cells from the respective mesenchymal fundaments, as is witnessed by the presence of myelocytes and nucleated reds. This view is further substantiated by the clinical findings of increased joint heat and swelling. The temperature reaction and the clinical findings are not in the nature of an anaphylactic response, as is shown by the absence of an eosinophilia. The cyanosis observed is not due to methemoglobin. Improvement is most marked following those reactions in which there is a good myelocytic response. This is probably a measure of the capacity of the body to react. The marked similarity between the typhoid protein paroxysm and the malarial paroxysm causes Cowie and Calhoun to believe further that their production is due to a common etiologic factor—dead protein. The death of the malarial parasite sets free in the blood stream a sufficient amount of malarial protein to produce the typical protein reaction. The malarial paroxysm, therefore, is not due to the presence of the new organisms, as has been suggested, but to the death of the old ones.

Boston Medical and Surgical Journal

Jan. 23, 1919, **180**, No. 4

Institutional Dentistry (Insane) Report No. 4. F. A. Keyes.—p. 89.
Neck Injuries. H. W. Marshall.—p. 93.
Epidemic of Influenza. S. W. Myers.—p. 98.

California State Journal of Medicine, San Francisco

January, 1919, **17**, No. 1

Treatment and Laboratory Control of Diabetes. I. Langstroth.—p. 5.
*Karell Cure for Heart Disease Revived. N. B. Potter.—p. 11.
Pitfalls in Diagnosis and Treatment of Senile Hypertrophy of Prostate. W. B. Dakin.—p. 18.
*Abdominal Cesarean Section: Indications and Technic. L. G. McNeile. —p. 20.
Drugs in Their Local Application to Ear, Nose and Throat Treatment. H. Y. McNaught.—p. 25.

Karell Cure for Heart Disease.—The modifications of this cure which Potter has employed are one or more of the following: (1) full milk (unskimmed); (2) strengthening full milk still further by adding cream but without increasing the bulk; (3) by adding lactose in gradually increasing amounts; (4) adding unsalted and very thoroughly cooked oatmeal in gradually increasing amounts, either to the milk itself as a gruel, or as a cereal on which the milk with or without lactose is poured. Numerous other modifications of this diet and many radically different diets, tried out in cases of cardiac insufficiency, have failed to produce the benefit almost invariably a result of the original and simplest form, namely, four times 200 c.c. of skimmed milk.

Potter is convinced that in many cases quite as prompt and efficient diuresis, loss of weight, disappearance of edema, and marvelous subjective improvement can be obtained with such modifications in the diet as suggested by him as in following the strict Karell cure. These modifications, if carefully adjusted to the individual taste, digestion and condition, do not disturb but rather aid the digestion. They also enable the physician to carry out, even in private practice, an excellent diet for the purpose in hand without arousing too great opposition. They permit a slower and more agreeable transition to a normal diet, as well as an opportunity to continue such a diet a longer period or practically to renew it from time to time, and that, too, more or less indefinitely whenever an increase of weight or of edema or a recurrence of dyspnea warns the physician of its expediency. Potter believes that this diet plus the rest entailed accords a valuable introduction to any reduction cure. One essential feature (if not the most important) is the almost invariably resulting decrease in the work of the heart.

Abdominal Cesarean Section.—McNeill has done forty-five consecutive cesarean sections, losing two mothers—one from acute dilatation of the stomach and one from general peritonitis—and four babies; three stillborn and one, a premature baby, died in three days as a result of the neglect of the attendant.

Florida Medical Association Journal, St. Augustine

December, 1918, **5**, No. 6

Relation of Trained Nurse to School and Community Work. R. R. Kime.—p. 97.
Colitis. R. E. Wilhoyte.—p. 99.
Secretin and Change in Corpuscle Content of Blood During Digestion. A. W. Downs and N. B. Eddy.—p. 101.

Illinois Medical Journal, Chicago

November, 1918, **34**, No. 5

Diagnosis of Pulmonary Tuberculosis in Army. R. S. Berghoff.—p. 241.
Further Objections to Compulsory Health Insurance. E. H. Ochsner. —p. 244.
Army Medical Corps. E. J. Doering.—p. 250.
Diagnostic Signs of Tuberculosis of Bronchial Glands. W. B. Metcalf.—p. 252.
Cancer of Rectum (Operated on Through a Vaginal Incision). C. J. Drueck.—p. 255.
Value of Accurate Localization of Foreign Bodies in Eye. J. R. Hoffman.—p. 260.
Prostatectomy. F. Stewart.—p. 263.
Stillbirth Due to Infection. E. L. Cornell.—p. 266.
Treatment of Otosclerosis from Etiological Pathological Standpoint. H. L. Pollock.—p. 268.
Pathogenesis of Ophthalmia Eczematosa. M. Goldenburg.—p. 272.
Incipient Squint. E. J. Gardiner.—p. 277.

December, 1918, **34**, No. 6

Gall-Stone Disease Complicating Pregnancy. A. P. Heineck.—p. 297.
Induced Pneumothorax in Pulmonary Tuberculosis. Report of 202 Cases. E. Morris.—p. 306.
Diplococcus Pneumonia. F. J. Norton.—p. 312.
Epidemiology and Prophylaxis of Lobar Pneumonia. W. Baumgarten. —p. 314.
Study of Lobar Pneumonia. E. E. Simpson.—p. 316.
Trench or War Nephritis. (Is It a Clinical Entity?) M. Mandel.—p. 322.
Proper Diagnosis as Guide to Prognosis and Operative Treatment of Impaired Hearing. R. Sonnenschein.—p. 324.
Sarcoma of Testicle. Report of Two Cases. J. J. Gill.—p. 326.
Indications in Kidney Surgery. G. Kolischer.—p. 327.
Interpretation of Symptoms in Functional Nervous Disorders. I. B. Diamond.—p. 331.
Psvchiatry of Dementia Praecox. H. C. Stevens.—p. 335.

Journal of Cutaneous Diseases, New York

January, 1919, **37**, No. 1

*Association of Certain Cutaneous Lesions with Diseases of Hemopoietic System. D. Symmers.—p. 1.
**Unusual Forms of Superficial* Epitheliomas of Skin. L. W. Ketron.—p. 22.
*Elephantiasis Vulvae. A. Ravogli.—p. 38.
*Syphilis of Tongue. G. D. Culver.—p. 484.

Symptomatic Relationship Between Skin Lesions and Blood System.—Symmers claims that instances of generalized exfoliative erythrodermia occur sufficiently frequently in association with such diseases of the lymph nodes as Cohnheim's pseudoleukemia, lymphatic leukosarcomatosis, Hodgkin's disease, mycosis fungoides and disseminated tuberculous lymphadenitis, as to indicate a symptomatic relationship. Symmers suggests that, in these circumstances, toxic substances formed in the lymph nodes are offered to the skin for excretion, interfering with its nutrition in such fashion as to promote widespread desquamation of the superficial epithelium. There are apparently excellent reasons for the belief that mycosis fungoides is primarily a disease of the hemopoietic system, more particularly the lymph nodes, in the course of which diversified skin changes arise, partly as phenomena secondary to the discharge of lymphotoxins or myelotoxins, or both, and partly as a result of infiltration of the skin by the same variety of cells as characterize the structure of the diseased lymph nodes themselves. A case is cited by Symmers in support of his contention that the clinical and pathologic changes in the so-called lympho*dermia perniciosa of Kaposi* are essentially the same as those of Sternberg's lymphatic leukosarcoma, both belonging in the category with cases of mycosis fungoides in which leukemic transformation occurs. And, Symmers says, the greater number of all cases of so-called sarcoid growths, as grouped and classified by Darier, are almost certainly nodular cutaneous tuberculomas. Therefore the term *sarcoid should be eliminated* from dermatologic literature as meaningless and confusing.

Unusual Forms of Superficial Epitheliomas.—Three cases of basal-cell epithelioma of the skin are reported by Ketron because of their unusual clinical appearances. One was a case of multiple epitheliomas of the back. *The lesions* presented the dark-red color characteristic of syphilis. One was a depressel, oval, scarlike epithelioma on the right cheek. The third was a large circular epithelioma situated just above the left breast. The lesion had a hard nodule in the center. These basal-cell epitheliomas occur as flat patches on the skin, spreading superficially, with little tendency to invade the deep layers of the corium. These patches lack the tumor formation and progressive ulceration characteristic of the usual forms of cancer. The only clinical sign which the lesions may show characteristic of the common forms of skin cancer is a raised, pearly border. This is, however, frequently absent and the diagnosis may be impossible without a histologic examination. *Ketron calls* attention to the fact that these superficial cancers are apparently insufficiently emphasized in textbooks.

Elephantiasis Vulvae.—Elephantiasis is described by Ravogli as consisting of a chronic hyperplasia of the connective tissues of the skin and of the subcutaneous tissues from a lymph stasis. The passive congestion causes the effusion of serum from the blood and lymph vessels together with white cells, which, infiltrating the tissue elements, produce hyperplasia and consequently disproportion of the parts. The same process affecting the papillary layer of the derma causes the proliferation of the papillae in the form of small warts on the elephantiasic surface. That syphilis is the most obvious factor in the production of elephantiasis cannot be doubted, although Wassermann tests, in some cases, have been slightly positive, and in others negative. Local applications have been of no benefit. The elephantiasic organs have to be removed. Ravogli has obtained fairly good results in all his cases; the patients have been seen again after two or three years, and relapses did not occur.

Syphilis of Tongue.—Among 530 instances of syphilis seen by Culver the tongue was involved in twenty-seven (5.09 per cent). There were sixty-two cases with mouth involvement, not including instances of syphilitic angina. Therefore the tongue was affected in nearly one half of the mouth cases, and in the greater proportion of the lingual cases the disease was limited to the tongue. There was one instance of lingual chancre, nine instances with mucous patches, eight with gumma, nine with chronic specific glossitis, including leukoplakia, four having leukoplakia associated with other phases of chronic specific glossitis. In the nine cases which were treated by Culver the duration of the condition was from one to nine years, an average of four. Three patients gave negative Wassermann reactions of the blood serum, four were positive, and in two the reaction was not determined. In all the nine cases there was an absence of epitheliomatous degeneration, whereas in eight instances of gumma of the tongue, with an average duration of two and one half months, there was an instance of complication with epithelioma. The most important conclusion reached by Culver is that with a doubtful tongue lesion it is not only a justifiable procedure, but it is urgently advised to administer arsphenamin.

Journal of Parasitology, Urbana

December, 1918, **5**, No. 2

Sarcocystis Tenella Railliet: II Seasonal Infection. J. W. Scott. —p. 45:
*Effect of Laundering on Lice (Pediculűs Corporis) and Their Eggs. W. Moore.—p. 61.
Anatomy of Tetracotyle Iturbei Faust; Synopsis of Described Tetra-Cotyliform Larvae. E. C. Faust.—p. 69.
Parasites of Venezuela. Study of a Distoma. J. M. R. Sierra.—p. 80.
Flies of Genus Drosophila As Possible Disease Carriers. A. H. Sturtevant.—p. 84.
New Cercarineum from North America, Found in Fish. W. W. Cort. —p. 86.

Effect of Laundering on Lice.—The object of Moore's investigation was to determine to what extent laundering was destructive to both lice and eggs, and should it prove to be inefficient, what slight alterations could be made in the regular routine to make laundering effective. These experiments showed that the lethal temperature for lice is about 113 F. (45 C.) for twenty-two to thirty minutes washings, and a slightly higher temperature, 114.5 F. (45.8 C.) proved effective in fifteen minutes' time. The following procedure is recommended for the laundering of woolen goods to destroy both lice and eggs: Infested garments to be washed at a temperature of 120 F. (48.8 C.), not to fall below 115 F. (46.1 C.) during the washing period of fifteen minutes, this treatment to destroy the active stages without the use of any special chemicals. Garments are then treated in the regular manner until perfectly dry, when they should be placed in the hot air tumbler at a temperature of 150 to 170 F. (65.5 C. to 76.6 C.) for ten to fifteen minutes, resulting in the destruction of the eggs. By this method it will be possible to launder woolens without shrinkage, and destroy the lice and eggs without the use of a special chemical.

Kansas Medical Society Journal, Topeka

January, 1919, **19**, No. 1

Is War or Weather Responsible for Recent Prevalence of Pregnancy Toxemias? Results of Standardized Treatment of Forty-Four Cases. G. C. Mosher.—p. 1.
Hyaloid Reflexes and Their Clinical Significance. E. J. Curran.—p. 15.

Medical Record, New York

Jan. 25, 1919, **95**, No. 4

Two Hundred and Fifty Major Operations Under Local Anesthesia. J. Wiener.—p. 135.
Future Policy in Dealing with Disabled Civilians; Some Conclusions from Experience. D. C. McMurtrie.—p. 142.
Typhoid Vaccine as a Therapeutic Agent. W. W. Cadbury.—p. 144.
Military Organization and Treatment of Tuberculous Soldier. O. Paget.—p. 148.
Groping in Medicine. B. Robinson.—p. 149.

New York Medical Journal

Jan. 25, 1919, **109**, No. 4

Development of Colon Surgery. E. R. McGuire.—p. 133.
*Influenza at Army General Hospital No. 17, Markleton, Pa. P. A. Loomis and J. Walsh.—p. 135.
Flat Feet and Weak Feet. H. Scheimberg.—p. 138.
Secondary Sutures in Wounds. A. L. P. Piollet.—p. 142.
Endoscopic Treatment of Laryngeal Stenosis. H. L. Lynah.—p. 146.
Empyema, Abscess and Gangrene of Lung Following Epidemic Influenza. M. Behrend.—p. 150.
Perodactylism, Syndactylism, and Cleft Extremities in a Child. J. Epstein.—p. 153.
Case of Mental Imbecility with Absence of Sella Turcica: Improvement By Organotherapy. J. H. Leiner.—p. 156.

Influenza at U. S. Army General Hospital No. 17.—This epidemic was unique in that the original case from which all others developed was definitely known. A passing troop train consigned the patient to the care of Loomis and Walsh. The case was an extremely malignant case of influenza. The patient died. The necropsy showed bronchopneumonia of both lower lobes, the left being completely involved and the right to the extent of about 50 per cent. This patient had been carefully isolated. No one was allowed on the floor except the physicians, nurse and on the last day an attending corps man. The chief of the laboratory who saw him once to examine his blood manifested the disease the next evening. The medical chief who visited him was taken ill on the fourth day. The surgical chief saw the case only at necropsy, but came in contact with the chief of the laboratory all that day and the disease had fully developed on the next day. The nurse who attended the first patient showed definite symptoms on the fourth day. All four of these cases showed the typical signs of influenza and later bronchopneumonia, the chief of the laboratory dying and the other three patients passing through severe sieges and recovering. The disease spread to nurses and attendants, and it also developed in eighteen enlisted men and three tuberculous patients. Of these thirty-one patients, pneumonia developed in eight. All but one of these eight had been in direct contact with the original patient or with the chief of the laboratory, both of whom died. All physicians, nurses and enlisted men who came in contact with patients wore masks and gowns, and were carefully instructed in regard to precautions, though evidently without avail. Doctors, nurses and attendants helped to feed the flames and fill the wards until an immune staff was found. It is interesting to observe that out of 200 tuberculous patients the disease developed in only three while twenty-eight cases occurred among the personnel of 100.

New York State Journal of Medicine

January, 1919, **19**, No. 1

*Etiology of Nephritis. C. J. Hunt.—p. 4.
Diagnosis of Nephritis. A. A. Epstein.—p. 8.
Treatment of Chronic Nephritis. J. R. *Williams.*—p. 12.
Backache from Medical Viewpoint. M. S. Woodbury.—p. 18.
*Syphilis As Cause of Backache. P. W. Roberts.—p. 20.

Etiology of Nephritis.—Only such cases were *studied* by Hunt in which there were well defined evidences of focal infections and of renal involvement which suggested diffuse hematogenous inflammatory lesions or nephritis with fibrosis.

The influence of metallic or other toxins, except chronic foci, has been excluded in every way possible and the alteration of functional power before and after the correction of discoverable foci has been used as a criterion for diagnosis and as indicating chronic foci as the most important etiologic factor. In order to standardize each case immediately after the history and physical examination had been made, the patient was placed on a nephritic test diet, containing approximately 13.4 grams nitrogen, 8.5 grams sodium chlorid and 1,800 cubic centimeters of fluid during each twenty-four-hour period. Patients were not permitted to have eliminating baths, cathartics or enemata during days of observation. The meals were served in the room by a specially selected waitress and all foods and fluid not ingested were returned to the diet kitchen for remeasurement. By this means a more careful check was made of endogenous nitrogen and sodium chlorid. A specific gravity fixation test, a phenolsulphonaphthalein test, total nonprotein nitrogen determinations of the blood and of the urine were made. Ammonia nitrogen and chlorids from the urine and blood plasma chlorids were determined. Plasma acidity and blood sugar determinations were also made. The full details of all these tests and analyses are given in the original article, which should be consulted.

Of 342 cases of nephritis presented, sixty were studied by the methods noted. Of the sixty, forty-seven submitted to corrective measures as advised and were subsequently restudied. The longest period of observation was two years and the shortest twenty-six days following corrective measures. Of the forty-seven patients submitting to correction measures, nine have not been noted, six report little or no change, and thirty are "much improved" or "apparently as good as ever." Hunt says that the latter quotation appeared frequently enough to be used as a general statement. Culture studies showed a *Streptococcus nucosus* as the principal pathogen. Other bacterial forms, in order of frequency, were a diphtheroid, *B. mitis*, *S. candidus*, *S. viridans* and pneumococcus (not typed).

Inherited Syphilis as Cause of Backache.—The five cases of back pain observed by Roberts in this study fall under the general classification of myositis. Their symptomatology suggests irritation of muscle and fibrous tissue by some toxic material, and the degree of discomfort ranges from dull lumbar backache to acute pain on any attempt at motion. Except for tenderness on deep pressure in the gluteal and lumbar regions no characteristic features have marked these cases. These patients had been treated for a variety of disorders, including uterine displacements, sacro-iliac strain, Potts' disease, scoliosis and floating kidney, and in one woman a diagnosis of carcinomatosis was made. While Roberts has not been able always to demonstrate the presence of syphilis in these patients the fact remains that they all presented certain evidence of an hereditary taint and that the symptoms cleared up under mixed treatment.

Northwest Medicine, Seattle

January, 1919, **18**, No. 1

*Chronic Ulcerative Colitis. Review of 117 Cases. A. H. Logan.—p. 1.
Nitrous Oxid in Labor. R. S. Allison.—p. 9.

Chronic Ulcerative Colitis.—Logan shows that all forms of treatment of chronic ulcerative colitis are thus far unsatisfactory. The best results come from dieting and giving surgical rest to the colon, except in cases in which the condition is localized to the lower bowel within easy reach of enemas. Hyperemia of the bowel obtained by the use of hot water (120 F.) gives the best results to date. After the cure of the ulcer is obtained, marked deformity and stricture of the bowel remain permanently.

Pennsylvania Medical Journal, Athens

January, 1919, **22**, No. 4

Spontaneous Hemorrhage in Vitreous. E. Stieren.—p. 187.
Diseases of Uveal Tract and Their Sequelae. S. D. Risley.—p. 189.
Corneal Corpuscular Activity (Third Paper). J. E. Willetts.—p. 196.
Foot of American Soldier and Its Care. J. T. Rugh.—p. 198.
*Bone and Joint Casualties and Transport Splints. R. B. Osgood.—p. 205.
Care of Amputated in War. D. Silver.—p. 212.
*Ductless Glands in Military Practice. C. E. de M. Sajous.—p. 215.
*Present Status of Treatment of Syphilis. J. F. Schamberg.—p. 220.
Medical Conditions and Developments in Previously Recognized Complaints Due to War Emergency. J. M. Anders.—p. 225.
Place of Medical Inspector in Preventive Medicine. C. R. Phillips.—p. 234.
Scientific Medicine. What It Is and What It Is Not. E. Linton.—p. 236.
Eastward Ho. W. B. Konkle.—p. 240.

Bone and Joint Casualties.—Abstracted in The Journal, Nov. 23, 1918, p. 1770.

Ductless Glands in Military Practice.—Abstracted in The Journal, Nov. 9, 1918, p. 1608.

Treatment of Syphilis.—Abstracted in The Journal, Nov. 16, 1918, p. 1690.

Surgery, Gynecology and Obstetrics, Chicago

January, 1919, **28**, No. 1

*Gunshot Wounds of Lung and Their Treatment at Front. P. Duval.—p. 1.
*Treatment of Chest Wounds: Artificial Pneumothorax. R. Bastianelli.—p. 5.
*Early Treatment of Gunshot Wounds of Chest. G. E. Gask.—p. 12.
*Later Stages of Gunshot Wounds of Chest. G. G. Turner.—p. 17.
*Early Treatment of War Wounds. G. E. Gask.—p. 24.
*Acute Perforations of Abdominal Viscera. W. J. Mayo.—p. 28.
*Torsion of Great Omentum During Pregnancy. J. L. Bubis.—p. 33.
*Duodenectomy—Its Effect on Life of An Animal: Transplantation of Pancreatic Duct. E. G. Grey.—p. 36.
Mesodermal Mixed Tumors of Uterus: Case of Botrioid Chondrosarcoma of Endometrium. I. Perlstein.—p. 43.
*Shall Operation for Hypertrophied Prostate Be Done in Two Stages? F. R. Wright.—p. 56.
*Variety of Massive Syphilitic Splenomegaly Attended by Remarkable Vascular Changes. D. Symmers, A. O. Gettler and W. M. Johnson.—p. 58.
Treatment of Retrodisplacement of Uterus at Washington University Out-Patient Department and Barnes Hospital. E. C. Sage and Q. U. Newell.—p. 68.
*Carcinoma of Stomach: Three Cases With No Recurrence Five Years After Operation. J. Douglas.—p. 76.
*Simple and Expeditious Method (E. E. Montgomery) of Performing Abdominal Incision. P. B. Bland.—p. 83.
*Operation for Cure of Incontinence of Urine. H. H. Young.—p. 84.
*Method of Draining Bladder After Suprapubic Prostatectomy. E. D. Martin.—p. 91.

Treatment of Gunshot Wounds of Lung at Front.—Duval claims that of gunshot wounds of the lung, the general mortality in the advanced ambulances and in the hospitals of evacuation was on an average 30 per cent., this percentage not taking into account a large number of deaths which occurred in the advanced posts and in the base hospitals. The predominant causes of death were: hemorrhage, mechanical troubles of respiration from open thorax, and, above all, infection of the lung and pleura. Duval emphasizes that a gunshot wound of the lung presents exactly the same lesions as does any other war wound, and is subject to the same evolution. A lung wounded by a fragment of shell is always contaminated and later on infected by the same anaerobic germs which infect all war wounds; e. g., *B. perfringens*, *Vibrion septicus*. There are also often present streptococci, as well as those organisms which are the normal inhabitants of the bronchial passages. A wound of the lung has the same period of infection as any other wound. Associated with it, however, is a serious complication; namely, infection of the pleural cavity.

Duval's statistics from the Battle of the Somme where, excluding operations of urgency, cases were treated medically, show a mortality of 20 per cent. in 300 cases. In a later series when the operative treatment was employed, eighteen cases were operated out of 118 and no deaths; 100 cases treated immediately with one death from empyema. In a total of 136 cases—118 not urgent and 18 urgent—the general mortality was 9 per cent. It will be seen, therefore, that surgical treatment lowers the mortality very considerably. What is more, when septic complications do occur, they are less serious. Surgical treatment of the lung should, therefore, be considered as the logical prophylactic procedure to prevent sepsis.

Artificial Pneumothorax in Treatment of Chest Wounds.—Bastianelli reports on the use of artificial pneumothorax in cases of chest wounds. Of 290 penetrating chest wounds, there were with closed chest, 206. Of these 206 patients, 88 were treated by pneumothorax, and 118 by thoracocentesis and pneumothorax, with a mortality of 7 or 3.4 per cent. Of these, 3 were due to empyema, 1 to pulmonary abscess, 3 to septicemia. Of 84 cases of open chest wounds, 19 or 22.6 per cent. terminated fatally. Of the 19 dead, 1 patient died before reaching the hospital, 7 patients had bled and were shocked so severely that nothing but, perhaps, transfusion could have helped them. Subtracting these 8 cases, there remained 76 in which the treatment could be tried. In these 76, there were 11 deaths or 14.4 per cent. Of these, 7 were due to empyema, 4 to septicemia. Empyema occurred altogether 11 times but only in the cases treated by permanent closure of the parietal wound with the rubber bag. Since this procedure has been resorted to for emergency only and the wound has been sutured airtight according to Bastianelli's principles, only 2 deaths or 5.7 per cent. occurred in 35 cases.

Early Treatment of Gunshot Wounds of Chest.—The principle to be aimed at in the treatment of these cases, in Gask's opinion, is the early mechanical cleansing of the wound, both of the chest wall and of the injured viscera, the evacuation of all foreign bodies and of effused blood from the pleural cavity; the repair or suture of the damaged lung and the closure of the chest cavity by suture.

Operation in Later Stages of Gunshot Wounds of Chest.—The indications for operation in these late cases laid down by Turner are: 1. Foreign bodies in the parieties with or without sinuses. 2. Foreign bodies in the lung irrespective of size if associated with persistent cough, hemorrhage, or suppuration. 3. Large foreign bodies in the lung, even if the symptoms are purely nervous. 4. All foreign bodies lodged in the pleura with or without empyema. 5. All cases of infected hemothorax. 6. All cases of through-and-through wounds with shrinking of the side, lessened lung expansion, and interference with movements of the diaphragm in which treatment by exercises, etc., has failed.

Early Treatment of War Wounds.—The basis of all successful treatment of wounds, Gask says, is early mechanical cleansing by surgical operation conducted under aseptic precautions. By this is meant the removal of all dead or damaged tissue, together with all foreign bodies such as the missile, portions of clothing, or splinters of wood. If this is done and is followed by closure of the wound either immediately by "primary suture" or a few days later by "delayed primary suture," then a very large percentage of wounds heal by first intention, with a resultant saving of a great many lives and an immense reduction in the period of convalescence, labor of medical officers and of dressing material. The important thing is that a wound should be subjected to a complete, early, mechanical cleansing before organisms have time to multiply and invade tissues. If this is done, Gask says it matters little whether a wound is swabbed with ether, flushed with Carrel-Dakin solution, smeared with "bipp" paste, or packed with flavine. As long as the wound is cleansed mechanically and no more organisms are put in, then the wound will remain clean and may be closed at an early date.

Acute Perforations of Abdominal Viscera.—Mayo's experience has convinced him that a considerable percentage of free perforations are spontaneously closed and that the area of peritonitis is limited through natural processes; the death rate is possibly about 30 per cent. but the 70 per cent. of patients who may recover spontaneously from the attack are not cured. An exploration through a longitudinal incision just to the right of the midline gives the surgeon an opportunity to make a careful exploration and to deal with any or all varieties of perforation. Early operation, that is within the first eight hours, barring accident, means recovery, because the stage of contamination has not yet passed on to infective peritonitis, and measures may still be taken for the permanent cure of the condition which leads to the perforation. Chronic conditions usually precede perforation and give ample warning of their presence before it takes place. While this is accepted, so far as the appendix is concerned, it has not been so generally recognized that gallstones are foreign bodies which need only infection to lead to the most widespread peritonitis, cholangitis, biliary cirrhosis and pancreatitis. Chronic ulcers of the stomach and duodenum, after a reasonable attempt has been made at medical cure, should be looked on as surgical maladies.

Torsion of Great Omentum During Pregnancy.—Bubis believes that his case was probably an adhesion of the tip of the omentum to the culdesac. The pressure from the growing uterus and the peristaltic action of the intestines, together with the congestion of the veins of the great omentum, were undoubtedly secondary causes of this condition. A localized point of tenderness, normal temperature, pulse and respiration, and the absence of nausea and vomiting in the early stages of pregnancy, are pointed out as constituting a group of symptoms very suggestive of torsion of the great omentum. One hundred and thirteen similar cases are recorded in the literature.

Duodenectomy: Transplantation of Pancreatic Duct.—Grey's experiments demonstrate, first, that the major pancreatic duct can be transplanted successfully into the jejunum. Many months subsequent to this operation nothing abnormal was made out in the microscopic or the gross architecture of the pancreas, except a dilatation of the duct, most apparent in the third portion proximal to the intestine. The ostium at the lumen of the bowel remains patent. Second, the biliary and the pancreatic secretions may be diverted successfully from the duodenum into the upper jejunum. The withdrawal of these alkaline juices from the duodenum must profoundly affect the chemistry of duodenal digestion, since peptic ulcers not infrequently decelop here under such condition. The subsequent resection of the duodenum and the suture of the jejunum (which now receives the pancreatic juice) to the stomach eliminates this complication. Third, it is apparent from the protocol of the duodenectomized animals that it is possible to resect the duodenum—every trace of mucosa and approximately all of the muscular coats—without embarrassing the vascular supply of the adjacent pancreas. This accomplishment does away with the necessity of excising the greater portion of the gland, a recourse to which Minkowski was forced to turn when he sacrificed the pancreaticoduodenal vessels with the duodenum. Fourth, success can only be looked for in excising the duodenum and carrying out the reconstructive steps when the operation is divided into a number of stages, leaving an interval of several weeks, at least, between the successive steps of the procedure.

Grey's experiments afford indisputable evidence that the presence of the duodenum is not essential to the life and comparative good health of a dog, at least for nine and one-half months, provided that the pancreas and the liver continue actively to discharge their respective secretions into the gastro-intestinal tract. From these considerations, then, it is evident that the conclusions of Stassoff regarding the inability of the remaining portion of gastro-intestinal tract to compensate for the loss of the duodenum are not substantiated by experiment.

Operation for Hypertrophied Prostate.—Wright's objection to doing suprapubic cystotomy as a preliminary to a prostatectomy is that if the patient becomes uremic after having established continuous drainage by cystotomy, one cannot refill the pelvis of the kidney and replace the kidney tubules to the abnormal position under which they formerly functionated. On the other hand, by doing preliminary drainage with a catheter, if the patient begins to show signs of uremia, one can withdraw the catheter and in a few hours the pelvis of the kidney will refill and the kidney tubules, being replaced to their abnormal position, will again functionate. The cause of death is the sudden emptying of the renal pelvis. Wright says that cystotomy should be reserved for use in those cases where catheterization, for any reason, is impossible; or, for use in those cases of acute cystitis that do not do well with a permanent catheter. If compelled to do a cystotomy, it should only be performed after catheterization or aspiration of the bladder has been carried on for several days.

Vascular Changes in Massive Syphilitic Splenomegaly.—Symmers and his associates report on the results of examination of six spleens. The variety of splenomegaly described was encountered in syphilitic subjects only. In the splenic substance were visible variable numbers of *pinhead-sized*, rounded, oval, or angulated bodies with a brownish or yellowish brown, granular looking center, and with or without a peripheral zone of red cells. These bodies which correspond, histologically, to sclerosis and mineralization of the smaller arteries, are characteristic and readily identified, and are distinct from anything familiarly encountered in the naked eye examination of the spleen. The substance of the spleen presents a reddish, flesh-like appearance, is leathery in consistence, and shows, on section, numerous small vessels whose walls are pale and thickened, correponding, microscopically, to venules in or around which hyaline deposits have occurred, but which are immune from infiltration by mineral salts. Hemorrhages may be seen by the naked eye and, histologically, are found in various stages of organization. In addition, the splenic substance is extensively replaced by the productive overgrowth of connective tissue of inflammatory origin.

Carcinoma of Stomach.—In each of the three cases reported by Douglas resection of about one third of the pyloric end of the stomach was done. The first case is of special interest because, notwithstanding the presence of a tumor of which the patient was herself conscious for eighteen months before operation, and although microscopic examination demonstrated scirrhus carcinoma, the tumor was not adherent to the surrounding parts, the operation was not technically difficult, and the lymph glands in the pyloric regions, although enlarged, were not the seat of malignant metastases. The second case presented several unusual conditions. First, the age of the patient, 30, which is rather an early age for the appearance of carcinoma of the stomach. Second, the proof, both from the history and the pathologic findings, of the development of carcinoma in the edge of a pre-existing ulcer. Third, the evidence of an old perforation which had been closed by adhesions to the liver, the capsule of which formed part of the new base of the ulcer. Fourth, the technical difficulty of the stomach resection, necessitating a resection of that part of the liver adherent to the base of the ulcer. The chief interest in the third case was the age of the patient, 71 years. This case also demonstrated that although the patient may be emaciated and weakened as a result of the pyloric obstruction, in the absence of metastases, age is not necessarily a contra-indication to a radical operation.

Simple and Expeditious Method of Performing Abdominal Incision.—In this method the gloved hands of the surgeon and his assistant, protected by gauze pads take the place of retractors and clamps. Complete protection against skin contact is said to be afforded.

Operation for Incontinence of Urine.—Young does a plastic operation on the internal and external sphincters in cases of incontinence of urine of long duration in which both internal and external sphincters have been destroyed by previous operative trauma.

Simple Method of Draining Bladder.—Martin uses a large catheter and a piece of rubber tubing, one-half inch in diameter, long enough to reach from the fundus of the bladder to a point 1 inch above the skin. Several small holes are cut in the tube near the end to be placed in the bladder, and one at the level of the skin, large enough to insert the catheter snugly so that the urine will not escape. The catheter is pulled through this opening to about one-half inch from the bottom of the large tube, the tube is introduced into the bladder and the wound closed tightly around it. As soon as the urine rises in the tube above the point where the catheter is inserted, it will prime the catheter and empty the bladder.

West Virginia Medical Journal, Huntington

October, 1918, **13**, No. 4

Treatment of Constipation in Infancy. C. L. Holland.—p. 121.
Infantile Diarrhea; Etiology and Treatment. C. A. Groomes.—p. 124.
Carrier Problem. A. Lederer.—p. 127.
Nephritis; Variety Classification and Treatment. S. D. Hatfield.—p. 133.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

December, 1918, **23**, No. 7

Electric Stimulation in War Injuries, with Special Reference to Ununited Fracture. A. E. Barclay.—p. 205.
Electrolytic Treatment of Lupus of Mucous Cavities by Nascent Iodin Method. J. D. Harris.—p. 222.
Congenital Variations of Big Toe Sesamoids. S. G. Scott.—p. 224.
*New Roentgen Ray Unit (Rad) in Roentgenotherapy. S. Russ.—p. 226.

New Roentgen Ray Unit in Roentgenotherapy.—The unit proposed by Russ is that quantity of roentgen rays which when absorbed will cause the destruction of the cells in question, and the name suggested for the unit is the Rad. The photographic action of the rays which are being administered to the patient is obtained on a photographic plate; on the same plate is impressed the photographic effect of a standard source of radiation; for convenience this is a capsule of radium emitting beta and gamma rays. The plate is developed with any developer, and with no restrictions as to time or temperature—any of these variables will affect the roentgen ray and the radium units to an equal degree; a comparison is then made between the photographic impressions so obtained. Assuming that the roentgen-ray tint for an exposure of ten seconds was equal to that obtained with an exposure of six seconds with the radium. The radium capsule, when applied to malignant cells, causes complete inhibition of their proliferation after an exposure thereto for one hour; this latter quantity is the suggested unit, namely, the Rad. Hence, the dose of roentgen rays at the position occupied by the plate during the ten seconds' exposure would be 1/600 Rad. Supposing that during a seance the tumor cells had been exposed for twenty minutes to the above intensity of roentgen rays, the dose received would be $\frac{20 \times 60}{10} \times 1/600 = 1/5$ Rad.

British Medical Journal, London

Dec. 28, 1918, **2**, No. 3026

Treatment of Some Common Female Ailments. F. J. McCann.—p. 705.
Gonorrhea in Women. W. E. Fothergill.—p. 707.
*Pulmonary Spirochetosis. J. A. Thomson.—p. 709.
Epidemology of Amebic Dysentery. H. M. Woodcock.—p. 710.
Triangle Splint in Treatment of Compound Fractures of Humerus. P. Turner.—p. 711.
*Position of Operation for Excision of a Semilunar Cartilage in Military Surgery. T. E. Hammond.—p. 714.
Clean Milk Supply. S. Delepine.—p. 715.
*Camphor in Acute Influenza Bronchitis and Bronchopneumonia. P. L. Giuseppi.—p. 716.

Jan. 4, 1919, **1**, No. 3027

Severe Anemias of Pregnancy and Postpartum State. W. Osler.—p. 1.
*Influenza and Its Complications. R. Muir, and G. H. Wilson.—p. 3.
*After-Results of Stomach Operations. J. L. Stretton.—p. 5.
*Case of Valvular Disease of Heart, Showing Unusual Powers of Physical Endurance. R. D. Rudolf.—p. 7.
Nasal Diphtheria and Epidemic of Influenza. E. M. Payne.—p. 7.
Spontaneous Pneumothorax in Course of Influenza Pneumonia. F. P. Weber.—p. 8.

Pulmonary Spirochetosis.—Having found spirochetes in considerable numbers in the sputum of one patient, Thomson systematically examined the sputum of all patients complaining of coughs by simple stains and by the special stain for tubercle. He found that pulmonary (or bronchial) spirochetosis in a chronic form was apparently prevalent among this group of patients. Seventy-nine patients were examined; thirty-nine showed spirochetes and in two cases tubercle bacilli were present. Some of these cases simulated tuberculosis, others malaria. So far as could be ascertained from the physical signs, which were always of an indefinite character, there appeared to be no serious pulmonary lesions.

Operation for Excision of a Cartilage.—From Hammond's observations it would appear that soldiers do not do as well after this operation as do civilians. The average stay in hospital following an operation of the excision of a cartilage is in the case of civilians three weeks; in four weeks the patient is again back at work. It has become increasingly evident that the prognosis in the case of soldiers is not nearly so good.

Camphor in Acute Influenzal Bronchitis and Bronchopneumonia.—Giuseppi treated 250 cases with camphor, with a mortality of one—a man who died after three days' illness from bronchopneumonia. The incidence of bronchopneumonia in the 250 cases was twenty-six, or 10 per cent.; in another series of 200 cases during the same outbreak, and untreated with camphor, the incidence was 8 per cent., but the number of deaths was four, a mortality of 2 per cent. The treatment adopted was the administration of pills containing 4 grains of camphor made up with soap, in mild cases three times daily and in the very acute cases every three hours. The treatment was continued until the temperature dropped and the signs of bronchitis or bronchopneumonia cleared up.

Influenza and Its Complications.—It is Muir's and Wilson's belief that Pfeiffer's bacillus plays a very important part in the production of the characteristic lesions of influenza.

After-Results of Stomach Operations.—In Stretton's series of 175 operations there were twenty-one cases of perforation of the stomach or duodenum. Ten of these patients were saved from death and only in one instance was there a recurrence. In the case of the eleven who died, perforation had existed for more than twenty-four hours when first seen. The gastro-enterostomy operations number 116. Some were performed with the object of giving temporary relief in cases of malignant disease, but the majority were for the purpose of establishing a new route for the exit of food into the jejunum, because the pylorus was partially occluded. In two cases the operation was performed for the relief of symptoms due to hourglass constriction of the stomach. In another case Stretton excised the hourglass constriction. The results in all three cases were equally satisfactory. Hence, Stretton prefers gastro-enterostomy since it is a far less serious operation than excision. The immediate mortality in this series of cases is 2 per cent. There were twelve cases of stomach cancer. One of these patients was operated on for carcinoma of the pylorus (partial gastrectomy). She is alive and well after 15 years.

Valvular Disease of Heart.—Rudolf cites a case of aortic incompetence, and possible stenosis, and of mitral leakage and probable stenosis in a soldier, aged 25, who not only stood the stress of active service in the front line for years and was at last only invalided on account of gassing but actually outrivalled all his fellows as an athlete. The case emphasizes the correctness of the view that has so often been urged in recent years by Sir James Mackenzie and others, that everything depends on the state of the heart muscle. This patient had evidently an exceptionally strong and sound myocardium.

Bulletin of Naval Medical Association of Japan, Tokyo

September, 1918, No. 20

*Variability of Paratyphoid Bacilli. M. Maruta.—p. 1.
Bone-Grafting in Surgery. K. Kuroiwa.—p. 2.

Variability of Paratyphoid Bacilli.—Maruta, working in Kure Naval Hospital in 1917, proved in the case of a patient discharging paratyphoid A bacillus in his feces, that an abnormal type of that bacillus began to be discharged along with the normal type, after the clinical signs had entirely disappeared. He could also isolate two types of bacilli discharged in the feces of a carrier of paratyphoid B bacillus. The duration of the discharge in the feces of the abnormal paratyphoid A bacillus was about one month, while the corresponding type of paratyphoid B bacillus continued to be discharged for six months. Both abnormal types of paratyphoid A and B bacilli had many common features. Serologically there was no difference between the normal and abnormal types. Maruta suggests that these abnormal types were developed from the normal ones which invaded the gallbladder of the patients; and, consequently, patients discharging these abnormal types may be regarded as permanent carriers. Experiments made to get the normal types from these abnormal ones, by passing the latter through animal bodies are unsuccessful.

Lancet, London

Jan. 4, 1919, 1, No. 1

*Influenzo-Pneumococcal and Influenzo-Streptococcal Septicemia. A. Abrahams, N. Hallows and H. French.—p. 1.
Comparative Pathology of Influenza. G. R. Murray.—p. 12.
*B. Multifermentans-Tenalbus. J. L. Stoddard—p. 12.
Spinal Anesthesia. F. S. Rood.—p. 14.
*Infantile Scurvy. Antiscorbutic Factor of Lemon Juice in Treatment. A. Harden, S. S. Zilva and G. F. Still.—p. 17.
Hysterical Vomiting in Soldiers. W. R. Reynell.—p. 18.

Influenzal Septicemia.—As to the pneumonic incidence in influenza cases, Abrahams and his associates found that out of 1,000 cases of "influenza" upward of 800 have taken an ordinary simple uncomplicated course with fairly speedy recovery and without sequelae. The remaining 200 have become more or less pulmonary; of these, perhaps, eighty being of moderate severity; the remaining 120 patients have been desperately ill; of these latter somewhere between sixty and eighty have died. In these latter cases the essential feature is an infection by *B. influenzae* with a secondary infection by some other organism, the pneumococcus, *Streptococcus pyogenes-longus*, or a "diplostreptococcus," the virulence of which appears to be exalted by the initial influenzal infection. The characteristic features of the septicemic type of case are variable lung symptoms, ranging from slight bronchitis to lobar pneumonia, very characteristic heliotrope lividity, dyspnea, or rather polypnea, and very rarely orthopnea. Infection takes place in the upper respiratory passages, and involves the accessory nasal sinuses, where a septic sinusitis develops. From this and possibly other foci as yet undermined, the toxemia or septicemia originates. In view of the large number of instances in which the diplostreptococcus has been isolated in pure culture from the heart's blood and internal organs immediately after death, it is concluded that this organism plays an important rôle in the fatal cases. The large majority of cases of septicemic type terminate fatally in spite of any form of treatment. Patients have recovered who have been given no specific treatment of any kind.

B. Multifermentans-Tenalbus in Gas Gangrene.—This bacillus was isolated by Stoddard from a case of gas gangrene of the arm which recovered promptly on excision of infected muscle. There appeared to be a production of lesions with *B. sporogenes* and *B. multifermentans* in combination which were not produced with larger doses of either alone. In one case death was produced in twenty-four hours. The lesions, as a rule, appeared to be local, consisting in swelling and tenderness for a short period and in a muscle infection for one to three days. *B. multifermentans* alone in moderate doses seems to be nonpathogenic; with *B. sporogenes* both become able to cross the threshold of the animal's resistance, but do not give extensive lesions. The morphology and cultural characteristics of this bacillus are described in detail.

Lemon Juice Residue in Infantile Scurvy.—Four cases of infantile scurvy are cited by Harden and his associates in which they used the residue of lemon juice from which the free citric and other acids had been removed. This preparation can be concentrated in bulk to any desired volume, or even evaporated down almost to dryness without losing its potency as an antiscorbutic. The almost complete elimination of the acids from the fruit juice removes or diminishes its irritant property, and the concentration of bulk makes it possible to give much larger quantities of the antiscorbutic factor than has hitherto been practicable. The outstanding feature of this treatment was the use for the first time clinically of the antiscorbutic factor separated from the greater part of the inactive components of the foodstuff in which it occurs. Moreover, this antiscorbutic factor was given in concentration at least double—in one case seven times—as strong as that in which it occurs naturally in the foodstuff (lemon) from which it was obtained. The treatment was thus, so to speak, "intensive." The result was found to be extremely rapid amelioration of the symptoms.

Medical Journal of Australia, Sydney

Nov. 30, 1918, 2, No. 22

Ministry of Health and National Health Service. F. S. Hone.—p. 445.
Emergency Surgery. A. S. M. Tymms.—p. 449.

Dec. 7, 1918, 2, No. 23

Asthma, From Point of View of Rhinologist. R. G. Brown.—p. 463.
Injuries to Fingers. W. K. Hughes.—p. 465.
Emergency Surgery. A. S. M. Tymms.—p. 466.

Dec. 21, 1918, 2, No. 25

Hookworm Campaign. J. H. Waite.—p. 505.
*New Operation for Bicornate Uterus. A. N. McArthur.—p. 510.

Dec. 28, 1918, 2, No. 26

Version in Midwifery. M. Culpin.—p. 529.

New Operation for Bicornate Uterus.—In the case cited, which was one of double uterus with a certain amount of fusion of the cervices and lower part of the bodies only, McArthur cut out completely somewhat less than the inner half of the cervices, the incision extending through anteroposteriorly, leaving the outer halves of each cervical canal. The posterior edges of the right and left cervical canals were then united, as were the anterior edges, making one cervix and one cervical cavity. Intra-abdominal operation was then undertaken, and here a congenital defect was found. The mesentery of the sigmoid flexure had continued from the pelvis, and was attached between the juncture of the two uterine bodies. This was not an adhesion, but a definite mesentery. McArthur suggests that perhaps this congenital defect had prevented the müllerian ducts fusing in their upper segments during fetal life. This mesentery was removed by dissection and was replaced in a normal position. An incision was then made clear across the fundi of both uteri down into their cavities. A portion of the septum remaining between the two uterine bodies that had not been reached by the vaginal route was excised and the endometrium of the two halves was curetted. The two uteri were then sutured together just as one would sew up the two halves of a split uterus, and when the stitching was complete, the uterus presented an absolutely normal form, appearance and size.

Sei-I-Kwai Medical Journal, Tokyo

Nov. 10, 1918, 37, No. 11

*Experimental Purpura Hemorrhagica Produced by Antibloodplatelet. T. Watabiki.—p. 47.

Experimental Purpura Hemorrhagica Produced by Antibloodplatelet.—The most interesting result of Watabiki's investigation was the fact that the subcutaneous injection of antibloodplatelet into animals produced typical purpura hemorrhagica, but guinea-pig's antibloodplatelet acted on guinea-pigs only. For isolating bloodplatelet, Watabiki found sodium citrate glucose salt solution best adapted to the purpose. Intraperitoneal injection caused a violent reaction producing typical purpura hemorrhagica, the animals dying in sixteen hours to four days. Intrapleural injection produced the same symptoms. Intravenous injection of antibloodplatelet caused instant death of the animal, and no peculiar symptoms could be observed on its dissection. Antibloodplatelet injection in excess of a fatal dose into an animal that was previously immunized by antibloodplatelet caused no change, but when the same quantity was injected into a normal animal it caused the death of the animal and showed purpura hemorrhagica on necropsy.

Bulletin de l'Académie de Médecine, Paris

Dec. 17, 1918, 80, No. 50

Child Welfare Work in Paris District. A. Pinard.—p. 561.
*Mediastinal Emphysema. C. Achard and L. Binet.—p. 609.
*Early Treatment of Wounds of Eyes. F. de Lapersonne.—p. 613.
*Blood in Malaria. F. Barbary, Bizouard and Ciers.—p. 619.
*Purulent Pleurisy. L. Bérard and C. Dunet.—p. 622.

Emphysema of the Mediastinum.—Achard's research on dogs seems to show that mediastinal emphysema is merely part of a more extensive cervicothoraco-abdominal emphysema.

War Wounds of the Eyes.—De Lapersonne reviews the experiences with war wounds of the orbit at the Hotel-Dieu at Paris, a total of 2,449 cases. See Paris Letter.

Changes in the Blood During Malarial Attacks.—Barbary comments on the great destruction of reds and of the hematoblasts during the attacks of malaria. The resulting anemia is a chlorosis, the toxins of the disease inducing intense hemolysis at each attack. In treatment, therefore, it is important to supplement the action of quinin by measures to aid in the regeneration of the blood. The most effectual in this line, in his experience, was colloidal iron. In tenacious cases he gives this with the quinin in intravenous injections, on alternate days, without heeding the hours of the attacks.

Postinfluenzal Purulent Pleurisy.—Bérard and Dunet insist that pleurotomy is indicated in every case of this kind in child or adult. The incision in the eighth or ninth interspace to evacuate the pus allows introduction of the finger to determine the lowest point of the pleura as the patient lies semireclining, the usually preferred posture. In this position the lowest point is in front, and he makes an incision here (or extends the first incision), resecting the eighth or ninth rib at the anterior axillary line. After resection of the rib, the pleura is incised where the finger within makes it protrude, at the lowest point. What is left of the pyogenic membrane lining the pleural cavity has to be removed in toto; this can be done by swabbing out the pleural cavity with a sponge held in long forceps. This second incision can be postponed to a few days later if the condition is grave. One or two large drains are placed in the anterior incision. Twenty-four hours afterward Carrel tubes are introduced through the first incision and the pleural cavity is flushed every three hours with a small amount of some antiseptic solution under weak pressure. This irrigation is kept up for eight or ten days. After this the irrigation can be continued at need, using merely a syringe. The patient is got out of bed as soon as the temperature is normal, by the third or fourth day, as a rule. He is ordered to walk about the room regularly. This ensures better expansion of the lung, expansion of the chest, and perfect drainage. In twenty-two cases in which this *méthode ambulatoire* was applied, the results were extremely gratifying except in two cases in which the preexisting pneumonia proved fatal. The others were completely healed in fifteen, twenty or thirty days, according as the pneumococcus, the staphylococcus or the streptococcus was involved. There was no loss of weight and no deformity of the chest. The clearing out so completely of the pus prevents absorption of toxic substances, and the patients are left in good condition, gaining instead of losing in weight.

Lyon, Médical

October, 1918, 127, No. 10

*Recurring Hydrarthrosis of the Knee. Tavernier.—p. 433.
Abnormal Propagation of Extracardiac Murmurs. L. Bouchut.—p. 439.
Charcoal in Treatment of Dysentery. P. Fayolle.—p. 446.
Chronic Lumbar Rheumatism. A. Léri.—p. 471.

Recurring Hydrarthrosis of the Knee.—Tavernier comments on the difficulty of ascertaining the cause in these cases, and reports instances in which the trouble was traced to an unsuspected foreign body in the joint or a synovial fringe or some lesion of the meniscus. One young girl, after a runaway accident, suffered constantly in the knee for a year but there was no apparent reaction in the joint nor atrophy of muscle. A minute fringelike projection on the meniscus was removed, and this materially reduced the pain without curing it completely. The pains in these puzzling cases spread through the whole knee and the joint may be tender throughout. He has operated in only four of his fifteen cases of dislocation of a meniscus. In two of the cases he removed the whole meniscus, as it was rough. The knee now in these two cases is indolent and there is no effusion. In complete extension the knee is solid, but when it is flexed there is a slight sideward movement but the joint is strong and serves perfectly in long walks and at the trade of cabinetmaker. Supervision of his cases for several years has shown that unless one's hand is forced by serious disturbances, it is better to advise the patients to wait, after a luxation, avoiding abrupt and violent movements, and lying down for a few days. Massage of the thigh muscles is useful to ward off atrophy, but he has seen very bad results from local massage, exacerbation of the pains, and return of the hydrarthrosis. The patients say that rest relieves, while mobilization and massage aggravate the pains.

Paris Médical, Paris

Dec. 7, 1918, 8, No. 49

*Diagnosis of Cancer of Lower Bowel. R. Bensaude.—p. 441.
*Pain in Stomach with Appendicitis. J. C. Roux.—p. 446.
*Gastric Ulcers Should Be Resected. P. Carnot.—p. 451.
*Operative Treatment of Gastric Ulcer. V. Pauchet.—p. 456.
Treatment of Ameba Carriers. M. Labbé.—p. 461.
*Chronic Amebic Dysentery. J. Carles.—p. 464.
Chloramin for Disinfection of Intestines. P. Carnot and T. Bondouy.—p. 468.

Dec. 14, 1918, 8, No. 50

*Lumbar Puncture After Injury of Brain. H. Bouttier and B. J. Logre.—p. 477.
Traumatic Shock and Collapse. A. Lapointe.—p. 480.
*Rheumatoid Purpura. M. Lavergne.—p. 483.
*Reduction of Subtrochanter Fracture. Costantini and Vigot.—p. 486.
*Vocational Reeducation of the Maimed. R. Van Roy.—p. 487.

Diagnosis of Cancer in Rectum and Terminal Colon.—Bensaude asserts that scarcely a fortnight passes in which he does not encounter some case in which palpation or endoscopy does not reveal some previously ignored cancer or correct the diagnosis of cancer. Some patients were being treated for cancer when the trouble was merely amebic dysentery, or an inflammatory tumor, or simple hemorrhoids proved to be responsible for anemia ascribed to a cancer. In other cases the symptoms of tabes had been attributed to cancer. Simple congestion has been mistaken for cancer; the awkward introduction of the rectoscope having caused bleeding. But the inverse error, the mistaking of a cancer for some comparatively harmless lesion is much more common, especially the diagnosis of hemorrhoids or enterocolitis, when the disease is really malignant. In his private practice alone, he has encountered in the last five years sixteen cases of cancer mistaken for enterocolitis, and given long courses of treatment on this basis. The age is no criterion; he has had a case of cancer in the rectum in a girl of 19, and Quénu has reported cases at 21, 28 and 30. The general condition is not necessarily impaired, and the patient may even gain in weight.

Nothing is more obscure, he says, than the early stage of cancer of the rectum or colon. There may be absolutely nothing to call attention to the region. Even if diarrhea or tenacious constipation attract attention, the disturbance is usually located by the patient in the upper abdomen; he complains of flatulence and of pain around the umbilicus. Others complain of pain in the groin; in one case the man was being treated for rheumatism. Disease in the lower bowel renders the patients irritable, hypochondriac, and may deprive them of sleep—all of which sustains the assumption of nervousness. With endoscopy, adherent feces may mask the lesion. In one case an abscess concealed the cancer. Masking folds can be smoothed out by insufflation, or they can be altered by a change of position. When a minute cancerous nodule is found, it should suggest a primary cancer above. The cancer may be of the ulcerative or infiltration type. The latter is common with metastatic cancer; the primary growth is usually in the stomach and there are probably other cancerous growths along the *intestinal tract*. As positive findings *with endoscopy* are so instructive, examination may well commence with this, but *no* other means of examination should be neglected in dubious cases, radioscopy, palpation, a flexible probe, examination of stools, etc.

Pain and Ulcer in Stomach Secondary to Appendicitis.—Roux analyzes some American works of the last few years on the pains in the stomach and ulceration at the pylorus or in the duodenum, all secondary to acute, subacute or chronic appendicitis. In three of Roux' own cases of the kind the pains came on at once after eating anything. The epigas- trium may be constantly tender. The pains may not develop until several hours after eating, but there is *no such* regu- arity of the time as with ordinary ulcer, and eating some- thing does not relieve them. In another group of cases, actual gastric or duodenal ulcer develops a few days or months after an attack of appendicitis. In this type of cases, removal of the appendix does not cure all disturbances, as is the case *with the merely painful gastropathies* just mentioned. Some slight lesion in the mucosa allows an ulcer to develop in addition to the reflex disturbances responsible for the painful gastropathies. The irritation of the solar plexus from the appendicitis probably induces reflex spasm of the pylorus and may modify gastric secretion.

Resection of Gastric Ulcer.—Carnot's arguments present a good plea for resection of the ulcer as gastro-enterostomy alone does not ward off the danger of hemorrhage, perforation and malignant degeneration. Even resection, however, does not guarantee absolutely against these, although materially reducing the danger. It should be supplemented by prolonged medical treatment and dieting.

Surgical Treatment of Gastric Ulcer.—Pauchet states that half of all cancers in the human are in the stomach, and three-fourths of them are grafted on old chronic ulcers. With most of these there never were any characteristic symptoms, or the symptoms were mild and occurred only intermittently and at long intervals. He gives an illustrated description of the various technics that have proved most successful with the different kinds and locations of ulcers. Among the minor points he emphasizes are the necessity for swabbing the sutures with tincture of iodin before burying them; the use of OO catgut for the perforating sutures; changing gloves before suturing the wall; never forgetting to close the breach in the mesocolon, and always handling the tissues gently, never pulling on them or crushing them.

Treatment of Chronic Amebic Dysentery.—Carles admits the marvelous efficacy of emetin in acute amebic dysentery, but says it has relatively little action in chronic amebiasis. For this emetin and bismuth iodid seems to be preferable. It is important, however, to free the patient of any other helminths he is harboring, as even this drug is useless when there are other parasites besides the ameba. The specific treatment should be supplemented by treatment of the gastro-intestinal secretory insufficiency, gastric neurosis and enteritis from fermentation, if they are associated with the amebiasis. Chronic amebic dysentery has to be combated with chronic treatment; even if the cure seems complete, successive courses of the iodid are indispensable.

Lumbar Puncture with Skull Wounds.—Bouttier and Logre discuss the unilateral vascular disturbances liable to follow injury of the brain. These disturbances may be favorably modified by lumbar puncture. This throws light also on diagnosis and prognosis, and on the etiology.

Rheumatoid Purpura.—Lavergne reports three cases in children from 5 to 12 years old, in which intense gastro-intestinal disturbances and melena were traced to rheumatoid purpura. When a child over 5 develops abdominal pain, with or without vomiting, the possibility of rheumatoid purpura should always be borne in mind, and the eruption should be sought for, especially on the legs near the malleoli where it is usually most intense. Even if *no eruption* is discovered, the diagnosis should be long expectant before *excluding* purpura definitely. In the first case, sudden and lively pain in one knee and in the abdomen were the first symptoms. By the next day there was severe pain in the wrists, and the following day there was melena and a purpuric eruption on the legs. Then all the symptoms rapidly disappeared, but the fifteenth day the purpura alone returned. By the end of the fifth week the condition seemed to be entirely normal once more. In the second case the abdominal pain and occasional vomiting had kept up for a month, but there was nothing to call attention to any of the joints. About the thirty-third day a slight eruption on the legs confirmed the assumption of purpura. It was so slight that it would have been overlooked if it had not been sought with special care. *In such* cases appendicitis is suspected, and if there is blood in the stools, melena or invagination is accepted. Palpation is so painful that the child will not allow it. In the third case only the elasticity of the abdominal wall spoke *against* appendicitis. As there was no eruption and no pains in joints, the diagnosis wavered only between chronic *invagination* and duodenal ulcer. The green fecaloid vomit, blood in the stools and the contrast between the pulse up to 120 and the normal temperature, with the intermittent character of the disturbances, were finally explained by the purpura eruption the sixteenth day.

Reduction of Subtrochanter Fracture.—Costantini and Vigot comment on the ease with which they were able to reduce and immobilize a subtrochanter fracture in three cases by placing the patient prone on a table, with an opening allowing the thigh to fall through, the heel suspended a little below the table, thus flexing the knee at a right angle This attitude brings all the parts into normal position for repair.

Vocational Reeducation of the Maimed.—Van Roy deplores the waste of time and opportunity when the maimed are allowed a convalescence furlough which usually confirms the vicious habits and contracture in the wounded, requiring weeks to undo. He declares that the professional training of the muscles should begin at the very earliest possible moment. It should be along the lines of the man's old trade when possible, or should aim to bring as many muscles as possible into play. Instead of the convalescence leave, the man should be compelled to go to work at his old trade, to a certain extent at least. If this is out of the question, he should be set to work in the fields or gardens. This would benefit him in every way, and hospitals should be planned to have fields or gardens available for the purpose. The question of rehabilitation of the maimed has numerous aspects according as the man requires vocational reeducation, functional restoration, physical reeducation, or vocational retraining if he is disqualified for his old vocation. If in addition the distinction is made between reeducating for military and for civil life, he thinks the results would be superior to those realized at present.

Presse Médicale, Paris

Dec. 12, 1918, **26**, No. 69

*Secondary Disturbances from Hysteria. G. Rousey, J. Boisseau and M. d'Oelsnitz.—p. 637.
Vitiligo and Syphilis. C. Withe and others.—p. 640.

Disturbances Secondary to Hysteria.—The paralysis and contracture in cases of hysteria have been called by some reflex nervous disturbances; others explain them by the dynamogenic theory. Roussy and his co-workers explain them by what they call the *théorie dyskinétique.* They regard the motor disturbances as of purely hysteric nature, or, as they prefer to say, pithiatic nature. All the other elements are secondary to the hysteria. In treatment, they focus their efforts to cure the hysteria by the usual psychotherapy. The immobilization of the parts to prevent their hurting, after a wound, or the vicious use of the member favors the development of the deformity in the predisposed, and the abnormal position impedes the circulation and the innervation. Passive exercise of the part is not of much use, but when the attempt is made to use the part normally, physiologic conditions begin to be restored. These hysteria patients, however, do not have the will power to attempt to use the part normally. Their frame of mind resembles that of the insured after an industrial accident. Experience with 2,000 cases of different psychoneuroses has demonstrated, they say, that this *syndrome d'utilisation vicieuse* or *syndrome dyskinétique* should be combated at the earliest possible moment. Physicians should watch out so that it should not be allowed to develop. The hysteria should be treated before these motor disturbances become a settled habit. Examination of the sound mate always reveals some predisposition on the part of vessel and nerve functioning.

Progrès Médical, Paris

Nov. 23, 1918, **33**, No. 47

Shell Shock. P. Blum and J. Poisson.—p. 393.
Treatment of Influenza. A. Vahram.—p. 395.

Nov. 30, 1918, **33**, No. 48

The Conception of Fever. Bernheim.—p. 401.
Camphorated Oil with Phosphorus in Influenza Asthenia. M. Loeper. —p. 401.
Incubation Period of Influenza. A. Bernard.—p. 403.
Share of Suprarenals in Metabolism of Sugar. A. Bernard.—p. 403.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 30, 1918, **48**, No. 48

*Large Doses of Camphor in Pneumonia. E. Feer.—p. 1601.
Treatment of Anemia. E. Bürgi.—p. 1604; W. Löffler.—p. 1618.

Camphor in Pneumonia.—Feer gives camphor in larger doses than others advise, and places it in the front rank in treatment of croupous and catarrhal pneumonia. It proved effectual also in the malignant pneumonia of the recent influenza epidemic in several apparently doomed cases. It is of not much use when given too timidly. One weakly boy of 6 with severe influenzal pneumonia, somnolency, cyanosis and high fever, weak pulse of 140 and 160, was given two daily subcutaneous injections of 10 c. c. of a 20 per cent. camphorated oil, and remarkable benefit followed, the albuminuria disappearing and consciousness returning. An empyema developed then which proved fatal the sixteenth day. The child had been given in eleven days 220 c. c., representing 44 gm. camphor. A delicate girl of 11 with influenzal pneumonia of left lower lobe and unilateral otitis media, with somnolency after the fifth day, was given from the sixth day on the same treatment as above. The seventh day the other lung showed infiltration; the twelfth day the whole of the first lung became infiltrated and the child seemed moribund, with tracheal râles. She recovered consciousness the fifteenth day and by the twenty-first the lungs were nearly all clear. During all this time she had been given the camphor, receiving thus 260 c.c of camphorated oil, representing 52 gm. camphor. These cases demonstrate that even children can bear large doses with advantage. For children under 6, he gives one or two injections of from 5 to 7.5 c.c of the 20 per cent. camphorated oil. He did not witness any benefit from normal serum or polyvalent pneumococcus serum, sometimes given before development of the pneumonia, but always without effect. The camphor, in large doses, on the other hand, is unable to abort the pneumonia, but it modifies conditions in the circulation so favorably that even desperate cases may be enabled to pull through. In adults he advocates injecting 10 or 15 c.c of the 20 per cent. camphorated oil twice a day or even more at need. The physician makes the injection himself at his two calls, or he might inject 20 c.c if unable to make more than one call a day. He adds that there is scarcely any danger of giving too large and injurious doses as is liable to be the case with digitalis and caffein. He has never observed any injury from the large doses of camphor or heard of any. Only Weintraud has mentioned agitation under its action, while Feer himself has found it display rather a sedative action. Harm from it in these doses could occur only when, from lack of grape sugar and oxygen in the organism, the formation of glycuronic acid, with which the camphor is harmlessly eliminated, might be hampered.

Policlinico, Rome

Nov. 15, 1918, Surgical Section No. 11

*Putrid Infection of Wounds. L. Fioravanti.—p. 321. Conclusion.
*Oblique Suture of Intestine. A. L. Soresi.—p. 340.

Putrid Infection of Wounds.—Fioravanti recalls that the gas-producing bacteria are all anaerobic, while the nongas-producing are the aerobic proteus, subtilis and colon bacilli. Gaseous phlegmons are the same by cause and nature as the gas gangrene, but the limitation of the process renders it more amenable to surgical measures. Gas may be produced by decay of tissues under the action of aerobic bacteria, but this is quite different from gas gangrene. The serum of the wounded with putrid infection never displayed any agglutinating properties for any of the germs, aerobic or anaerobic. This he ascribes to the intense agglutination induced in the tissues of the putrid wound; this prevents absorption of the antibodies which would generate the agglutinins. As the wound heals and loses its putrid character, the antibodies become absorbed and agglutinins are developed which clump the staphylococci, etc., isolated from the purulent secretions of the wound.

Oblique Entero-Anastomosis.—Soresi gives thirteen illustrations of his method of uniting the intestine which avoids the drawbacks of end-to-end and of side-to-side suture, and leaves the intestine wider at the point of suture, thus obviating any tendency to stenosis. In his preliminary report he called his technic a new method of lateral anastomosis, but he now prefers to style it oblique anastomosis, as it is not a lateral suture although it begins with this, the side-to-side suture being a mattress suture with silk 40 cm. long. The ends of the stumps are then slit lengthwise, parallel to and about 3 cm. from the seroserosa suture, stopping 3 mm. short of its ends. This leaves six raw edges, four lengthwise and two transverse, and the corner is cut off rounding. The inner raw edges are then sutured together with catgut. As there is now no corner, there is then left only one long single raw edge on each stump. These edges are sutured together, the slanting edge on one stump fitting against what was the straight transverse edge on the other. The one single suture thread does for the entire operation. The two ends of the suture thread meet in the middle, and then complete the seroserosa suture all around. The result is like an end-to-end suture, but the line of juncture is oblique. It is safer than the end-to-end, takes less time, not over five or six minutes in all, while the single suture thread used much facilitates the whole. He uses black silk, as it shows up better during the operation. One important feature of the technic is that as the stitches are taken they are drawn taut in turn, and held firm, with anatomic forceps, which also inverts the sutured edges. The segment containing this anastomosis is much wider than the normal bowel, and retains all its anatomic and physiologic relations, the natural course of the feces unmodified. His preliminary communication was summarized in The Journal March 6, 1915, p. 859. The years of experience with the method since, he reiterates, have confirmed its advantages.

Rivista Critica di Clinica Medica, Florence

Oct. 26, 1918, **19**, No. 43

*Cartilage Grafts in Reconstruction After War Wounds. G. Fantozzi. p. 505. Commenced in No. 41, p. 481.

Nov. 9, 1918, **19**, No. 45

*Acidity of the Urine. E. and E. Pittarelli.—p. 529. Commenced in No. 44, p. 517.

Cartilage Grafts.—Fantozzi declares that the results obtained in the last eight years with cartilage grafts in Ceci's surgical service at Pisa have been so gratifying that high hopes can be based on this technic reparative orthopedic surgery. Cartilage taken from the costal arch was utilized to reconstruct the tip of the nose, the septum, the ear, and correct saddle nose and other deformities, with the finest results. In none of the numerous cases was there anything approaching a failure. He describes what has been done by others in the line of cartilage grafts, and gives the details of a case in which the tip of the nose had been bitten off. The patient was a young Italian woman, the victim of an atrocity in the war between Italy and Turkey. The nose was reconstructed in 1911, and the results during the seven years since have been beyond criticism. The new nose built up with cartilage and with a skin flap from the left arm is better looking than the original nose, to judge from an old photograph.

In reconstruction work after war wounds, he advises allowing several months to elapse before attempting it, as there is danger of rousing latent infection otherwise. Massage, heliotherapy and other measures, especially hot applications, to enhance the vitality in the parts will facilitate the task of repair by softening cicatricial tissue and warding off adhesions. A preliminary course of iodids or injections of thiosinamin might prove useful in certain cases. Radiography should not be neglected, as this might reveal foreign bodies, scraps of projectiles, etc., which might compromise the outcome of the operation. He gives nearly three pages of bibliography, set solid, on cartilage grafts and reports two cases in which cartilage was used to reconstruct the face after an extensive war wound of the face. One of the men had a comminuted fracture of the zygomatic bone with loss of the entire malar bone. A plaster model of the cavity left by the loss of the malar bone was first made. Then a piece of cartilage was cut from the costal arch and modeled to copy the plaster cast. It was then fitted into the face and smalle pieces of cartilage were fitted in above to reconstruct th orbit and the projection of the zygoma. The skin was suture leaving a small glass drain for one day. A starch dressin was applied, and the region was dressed four times in week, by which time healing by primary intention wa complete.

Acidity of the Urine.—The Pittarellis report critical an experimental research in addition to their clinical analysi of 7,500 specimens of urine, which have established, the think, that the acidity of the urine is not the simple thin generally accepted. There are at least two acidities, on reacting to methyl orange, and the other to phenolphthalein It would be interesting to study the proportions betwee them in different diseases. The acidity that responds t methyl orange is not constant, like the other. There is als a latent acidity, which can be rendered evident by additio of formaldehyd. The true acidity of the urine, that is, th acidity due to the free or semicombined acids, forms scarcel two-thirds of the acidity we estimate with litmus paper, etc The other third is made up of salts of weak bases combine with weak acids. This proportion keeps quite constant. Th true acidity of the urine, therefore, is always lower tha the figures hitherto accepted as correct; it corresponds o an average to an acid solution of the strength of thirtieth-normal.

To distinguish between the real and the apparent acidit of the urine, two equal volumes of urine are treated each with several c.c. of calcium chlorid to transform all the phosphoric acid into calcium salts. Then one specimen is tinted with phenolphthalein and the other with dimethyl-amido-azobenzin, and the first is rendered neutral with tenth normal sodium hydroxid solution and the other with tenth normal hydrochloric acid solution. The alkali required for the first specimen corresponds to the sum of the free weak acids and the combined weak acids. The acid required for the second specimen corresponds to the weak bases combined with the weak acids and therefore also to these weak acids transformed into salts. The difference between the volume of the sodium hydroxid and the volume of the hydrochloric acid corresponds to the free acids.

Anales de la Facultad de Medicina, Lima

September-October, 1918, **2**, No. 5

Aneurysm of Ascending Aorta. E. Odriozola.—p. 101.
*Pituitary Syndrome. M. G. Olaechea.—p. 103.
*Ambard's Ureosecretory Coefficient. M. A. Velasquez.—p. 110.
Saccharomycosis of Lips. R. E. Ribeyro.—p. 122.
*Early Psychology in Peru. H. Valdizan.—p. 128. Cont'n.
*Bronchopulmonary Spirochetosis. A. Corvetto.—p. 141.
Psychanalysis. H. F. Delgado.—p. 148. Cont'n.

Pituitary Syndrome.—Olaechea reports a case which he says is a counterpart of one reported in 1917 by Claude and Lhermitte as a case of infundibular syndrome from a tumor in the third ventricle. Olaechea's patient was a woman of 35, previously healthy. The first symptoms were impairment of vision and reduced sensibility in the right side of the face, mucosa of the cheek, the teeth, and hyperesthesia in the right side of the tongue, with deafness and exaggerated tendon reflexes on that side. There was bilateral choked disk, and in walking she diverged constantly to the right and the head became twisted toward the right. In ten months the blindness was total and muscular contractions interfered with chewing; sometimes fluids were expelled through the nose. The temperature, respiration, circulation and the digestive and urinary apparatus seemed to be functioning normally, until toward the last intense headaches and tachycardia followed any attempt to sit up. There were also periods of narcolepsy and pronounced polyuria. The symptoms suggested leptomeningitis in patches. The cerebrospinal fluid was limpid but contained tubercle bacilli. There was evidently disturbance in pituitary functioning from compression of the infundibulum.

Ambard's Ureosecretory Constant.—Velasquez remarks that Ambard's formula cannot be used when the output of urine is less than 500 c.c. in the twenty-four hours. If the coefficient is only temporarily low, due to passive congestion from weak heart action, improving conditions in the heart functioning will raise the Ambard index. The formula cannot be depended on, he reiterates, unless the urea in the blood and in the urine and the ammonia in the urine are all determined.

History of Early Spanish Colony in Peru.—In this installment of his work "Locos de la Colonia," Valdizan describes the fools and buffoons kept by the governors of the province and others. He mentions also other persons who were or pretended to be half-witted, some of whom played a prominent part in the life of the colony.

Bronchopulmonary Spirochetosis.—Corvetto reviews the present status of what Castellani described in 1905 as bronchospirochetosis, and describes a case personally observed. The patient was a young Indian policeman and the disease was chronic with occasional acute exacerbations. The onset was with a chill and high fever for four days, but by the end of the month there was only a dry cough with serous and bloody expectoration. The microscope showed the sputum swarming with spirochetes. Under symptomatic measures they gradually disappeared from the sputum until by the end of the month only very few could be found, and the man has been in apparently complete health since. Corvetto warns that so many Asiatics are coming to Peru now that there is danger of an epidemic of this bronchopulmonary spirochetosis.

Archivos Españoles de Pediatria, Madrid

October, 1918, 2, No. 12

*Asthma in Children. J. G. del Diestro.—p. 577.
*Mycosis of Pharynx in Child. A. M. Calderin.—p. 596.

Asthma in Children.—Diestro reviews the features which differentiate asthma in children from the attacks of suffocation with the exudative diathesis and spasmophilia, which resemble but are not true asthma. He describes four cases of the latter in children from 8 months to 9 years old, previously apparently healthy. Two of these children were of the same family and the attacks came on at the age of 6, when the children were taken from Madrid to a northern summer resort. The mother was subject to similar attacks, and the characteristic crystals were found in the sputum of all three. The infant's dyspnea and cyanosis were extreme and a gouty taint was evident in this family. In all the children the attacks grew less severe and less frequent, and the children seemed to outgrow the tendency in from two to four years. In one of the cases true asthma coincided with enlarged tuberculous glands in the mediastinum, but the crystals confirmed the diagnosis. Infarcts in tuberculous mediastinal glands induced in some other children attacks deceptively resembling true asthma, and improving under tuberculin treatment. One of the children died of meningitis a year later. Children with the exudative diathesis may present recurring tracheobronchitis or attacks of asthma. Such children usually have noisy breathing, the mothers saying that it is the "noise of the phlegm." This is persisting, but the acute disturbances resembling asthma may alternate with skin manifestations. In one infant the eczema and the asthmatiform disturbances ebbed and waned alternately, unmodified by any measures but finally disappearing, the child as it approached the age of 5 being in apparently good health. In another infant, 4 months old, the enlarged thymus induced cyanosis and tendency to suffocation suggesting asthma. At first they occurred only when the child was crying, but later they became almost continuous. The parents would not consent to operative measures and the outcome is not known.

Actinomycosis of the Tonsil.—The usual measures applied to the acute tonsillitis in a young child failed to modify it and no benefit was derived even from gargling with glycerin containing 2 per cent. iodin and 8 per cent. potassium iodid. The absence of general symptoms and the refractory behavior suggested that the trouble was a mycosis, as there was a history of a stalk of grain being driven into this tonsil during a fall some time before. The tonsil was covered with nine white excrescences, and after failure of other measures, these excrescences were dug out, one by one, with prompt and complete return to normal.

Cronica Medico-Quirurgica, Havana

September, 1918, 44, No. 9

American Medical Solidarity. Editorial.—p. 487.
*Importance of Treating Optic Neuritis Even of Long Standing. Juan Santos Fernandez.—p. 490.
*Ocular Tuberculosis. F. M. Fernandez.—p. 500.
Measles and Scarlet Fever Due to Alimentary Arsenic or Iodin Poisoning. V. de Castro.—p. 513.

Old Optic Neuritis.—Santos Fernandez insists that when blanching of the papilla is due to remote causes in brain or medulla or meninges, the optic neuritis might possibly have been arrested or cured if it had been systematically treated from the first or even at a later stage. The success we so often realize with specific treatment when syphilis is responsible for the blanching of the papilla should encourage heroic efforts in this line under other conditions. He reports five cases to sustain this view that possibly some of the nerve fibers might have escaped degeneration and might have been trained to recuperate their function. In these five cases the blanched papilla and the remnants of vision have not grown any worse during the long periods, up to forty-five years, during which the patients were under observation. In most of them the optic neuritis followed meningitis in early childhood, but the stationary character of the affection should have warned of the possibility of recuperation. The outcome cannot be deduced from the ophthalmoscope findings. The blanching of the papilla may last for weeks or years, and the vision may be impaired very little or be lost entirely. If the affection develops in the form of a central scotoma, the temporal sector of the papilla blanches first, and for a time may be the only sign of the degeneration. This occurs so often with alcohol intoxication that he called attention some years ago to this alcoholic amblyopia as a sign of alcohol poisoning. In conclusion he recalls the marvelous results now currently obtained in children completely blind from meningitis who recover vision under the influence of antimeningococcus serum.

Tuberculosis of the Eye.—Fernandez reviews the various forms in which tuberculosis can manifest itself in the eye, adding that on account of the insidious onset the tuberculous process is liable to escape recognition. The ocular process is generally secondary, but seldom secondary to pulmonary lesions. Any eye affection running a chronic course is suspicious of tuberculosis. Tuberculin treatment is the main reliance and has proved very successful in some cases, although it fails in others. It has given the best results in tuberculous iritis. Many have reported surprising cures under it, especially when associated with guaiacol applied locally in a 3 per cent. salve or 2 per cent. solution, or by subconjunctival injection. Darier has reported good results from subconjunctival injections of tuberculin in cases of tuberculous choroiditis; he explains this by the close communication between the subconjunctival space and the choroid. Others have reported good results combining this with subconjunctival injections of guaiacol.

Medicina Ibera, Madrid

Sept. 21, 1918, 4, No. 46

*Morphin in Eclampsia. C. E. Roe.—p. 297.
Injection of Oxygen in Dyspnea. C. G. Zavaleta.—p. 304.

Sept. 28, 1918, 4, No. 47

*Periscope for Radiography. L. Bois.—p. 325.
*The Ambard Constant. F. Zapata.—p. 326.

Oct. 5, 1918, 5, No. 48

Treatment of Ulcer of Cornea. C. U. Alvarez-Reyero.—p. 2.
Iodin in Therapeutics. V. A. S. Alvarez.—p. 3.
Acute Dilatation of Aorta from Exertion. M. Utrera.—p. 7.

Oct. 12, 1918, 5, No. 49

Diagnosis of Cerebral Uremia. J. M. Bausa.—p. 24.
Iodin in Therapeutics. VI. A. S. Alvarez.—p. 24.
*Prophylaxis of Valvular Lesions of the Heart. A. Simonena y Zabalegui.—p. 42. Conclusion.

Obstetric Eclampsia.—Roe relates that there were only two fatalities in the thirty-two cases of eclampsia in which he gave morphin by Rouvier's technic. The first dose is 0.02 gm., with half this dose again in half an hour and again in another half hour, continuing with 0.01 gm. at hour intervals thereafter. The bowels are rinsed out with 6 or 8 liters of boiled water every eight hours. If the morphin could have been begun at the very first convulsions, he is confident that all the patients might have been saved. Thirteen cases are reported in detail.

Roentgen Periscope.—With Bois' periscope the roentgenologist can stand entirely outside of the field of the rays while inspecting the shadow on the screen, as he shows in an illustration. The periscope can be used in broad daylight.

Ambard's Ureosecretory Constant.—Zapata warns that the dread of having blood drawn or other cause for emotional stress may affect the diuresis to such an extent as to modify the Ambard coefficient when urine is obtained for the purpose. He makes a point of getting the urine for the test before drawing blood or other maneuver, and strives to keep the patient tranquil and placid with every biologic test.

Prophylaxis of Valvular Disease.—This long article, which has been continued serially during two months, reviews the present status of prophylaxis of disease of the heart orifices and valves. The main point is thorough treatment of acute rheumatism and syphilis until they are cured or become extinct. Next in importance is the early and active treatment of every infection, and, last but not least, moderation in eating and drinking. Also active muscular exercise during the years when life is taken more easily and one is inclined to lapse into settled sedentary habits in the thirties. Modern life strains the mental faculties but lets muscles rust from disuse, and this tendency favors heart disease.

Revista Ibero-Americana de Ciencias Medicas, Madrid

October, 1918, **40**, No. 170

*Fibrous Transformation of Adipose Tissue in Knee. A. M. Angel.—p. 241.
Dislocations and Fractures of Elbow. S. G. Hurtado.—p. 261. Cont'n.
Present Status of Chronic Myocarditis. A. Mut.—p. 265.

Chronic Inflammation in the Knee.—Angel has not been able to find any record of the affection in question. Without any new cause there seems to be an attack of mild inflammation in one or both knees; there is an effusion of synovial fluid but not much pain and no fever. The bones are shown by radioscopy to be entirely normal, and these patients seldom have any history suggesting gonorrhea, gout, tuberculosis or rheumatism. The trouble is a chronic inflammation of the adipose ligament with occasional transient involvement of the serosa of the knee joint. The cells of the adipose tissue have become transformed into fibrous tissue under the influence of some repeated slight trauma, such as the rubbing of the knee against the bedstead in doing massage, or a sudden wrench as in playing football. When the fibrous transformation is once realized, nothing but removal of the adipose ligament will cure the condition. He describes briefly the technic with which he has removed the adipose ligament without opening up the joint or injuring the serous membrane.

Revista de Medicina y Cirugia, Havana

Dec. 10, 1918, **23**, No. 23

*Antisepsis for Surgery of the Eyes. R. Guiral.—p. 645.
Inaugural Address of Physiology Course. R. P. Vento.—p. 649.

Modern Antisepsis in Surgery of the Eye.—Guiral had to abandon tincture of iodin in surgery of the eye as the iodin toughened the conjunctiva until it was like parchment, too hard to cut readily. Otherwise the iodin was extremely satisfactory. He is now using a mixture of 0.5 gm. each of crystal violet and verde violet in 50 gm. each of distilled water and 80 degrees alcohol. This is applied freely to the eye after the cocain; in a few minutes he rinses out any excess of the stain. If the eyeball is very intensely stained, he anoints it a little, and the operation can proceed with all confidence that the tissues are perfectly sterilized. His success in a series of 100 cataract operations amply proves this.

Revista Medica Cubana, Havana

August, 1918, **29**, No. 8

Glaucoma and Dacryocystitis; Iridectomy. J. Santos Fernandez.—p. 407.

October, 1918, **29**, No. 10

Cysts in the Neck. J. E. Ferrán.—p. 518.
*Paralysis of the Third Pair. J. Santos Fernandez.—p. 524.

Syphilitic Paralysis of the Third Pair.—Santos Fernandez relates that the paralysis had been ascribed to a fall, the girl of 8 having struck the vertex of her head in falling, but the failure of all other measures and the prompt subsidence of the symptoms under a course of mercurial treatment differentiated the affection as a manifestation of inherited syphilis.

Revista Medica del Uruguay, Montevideo

October, 1918, **21**, No. 10

*Transfusion of Citrated Blood. L. Agote.—p. 595.
*Congenital Missing Half of One Vertebra, with Rudimentary Twelfth Rib. C. Butler.—p. 606.
*Technic for Splenectomy. L. Mérola.—p. 615.
*Nephropexy by Transperitoneal Route. L. Mérola.—p. 622.
*Ophthalmoplegia of Malarial Origin. J. C. M. Fournier.—p. 626.

Transfusion of Citrated Blood.—Agote describes his first application of the citrated method for blood transfusion, Nov. 9, 1914, and the history of the general adoption of the method since.

Aplasia of Spine and Ribs.—Butler gives roentgenograms of a young man apparently healthy until an attack of kidney colic. The roentgen rays then disclosed that half of the third lumbar vertebra was missing and also nearly all of the left lower rib. Both deformities can be explained by assuming an intra-uterine lateral inflexion of the spine.

Splenectomy.—Mérola advises utilizing, more than has hitherto been the case, the natural planes of cleavage in the abdomen in surgery of the stomach, etc. He describes the inframesocolic and the supramesocolic planes of cleavage. For resection of a segment of the stomach, its cleavage connection with the spleen and pancreas has to be broken up as otherwise they are pulled unnecessarily out of place when the stomach is lifted up. On the other hand, this cleavage facilitates removal of these organs together, as he shows in reporting a case of a large tumor in the spleen requiring resection of the tail of the pancreas. The whole mass of the spleen, etc., was removed in one block after ligation of the splenic artery, which before separating the ligaments had been inaccessibly buried. In a second case the spleen, a large segment of the stomach, and the tail of the pancreas were removed together as one mass, thanks to the retrogastric-pancreatic plane of cleavage. The operation was complicated, however, by resection of the left angle of the colon, the necessity for which had not been anticipated, and the patient succumbed two days later. His incision for these operations is on the median line. If conditions are found which justify the extirpation, he continues the incision upward and to the left, and resects 2 cm. of the bony end of the seventh rib. If the pleura is opened, he sutures it at each of the lips of the incision to isolate its cavity. This gives ample access to the region and opportunity for taking advantage of the retrogastric-pancreatic plane of cleavage, "one of the wonderful cleavages which make such operations in the upper abdomen possible."

Nephropexy Through the Peritoneum.—Mérola has noticed that when there is a floating kidney, the right angle of the colon is generally sagging also. When there is congenital displacement of the kidney, the cecum and the colonic angle are often abnormally low. In one case of movable kidney the colonic angle had sagged into the iliac fossa. In operating for appendicitis in this case, after removing the appendix he incised the peritoneum, thus reaching the movable kidney. He fastened it to the anterior aponeurosis of the transverse muscle and to the peritoneum. Then the peritoneum was sutured and the colonic angle was lifted up with a few supporting stitches, thus bringing it up until it concealed the suture in the peritoneum. The nephropexy was thus done without a special incision for it, utilizing the appendicectomy incision. The same might be done, he adds, at a gallstone operation. He does not approve of fastening the kidney to a rib. Still another method of nephropexy consists in suturing the peritoneum to the wall below the kidney so that the latter cannot slip down, once replaced in its position. Two U stitches with silk hold the peritoneum against the muscular wall. The ends can be tied just below the skin, through a small incision at the back. The suture threads thus hold the peritoneum against the wall and hold back the kidney in its place.

Total Ophthalmoplegia of Malarial Origin.—Fournier reports a case of this kind and states that he can find no duplicate of total malarial bilateral ophthalmoplegia in medical literature. The ophthalmoplegia was purely motor and yielded promptly to quinin treatment. The onset was sudden, accompanied by severe headache and chill. The man was an Italian sailor of 29. The ophthalmoplegia was total in both eyes and left facial paralysis had developed with it and subsided at the same time. In a recent compilation of twenty-five cases of malarial polyneuritis, in only two were cranial nerves involved, and these were the seventh pair.

Revista Sud-Americana de Endocrinologia, etc., Buenos Aires

October, 1918, **1**, No. 10

Liver *Organotherapy.* S. F. Oyarbide.—p. 285.
*Sugar Injections in Whooping Cough. A. J. Armando and L. V. Berisso.—p. 287. Concluded in No. 11, p. 325.

Sugar Treatment of Whooping Cough.—Armando and Berisso report treatment by intramuscular injections of 5 or 10 c.c. of a 100 per cent. solution of saccharose in twenty cases of whooping cough. The first effect noted was that the nights passed without paroxysms; the number during the day increased at first, but then grew progressively milder and shorter and in ten or fifteen days the cough had disappeared. There was no expectoration after the eighth or tenth day. There were no complications or by-effects. No other medicine was given. The disease was of from ten to twenty days' duration in the twenty cases; the details of all are given in full.

Semana Medica, Buenos Aires

Oct. 24, 1918, **25**, No. 43

Solid Tumors in Broad Ligaments. M. Serfaty.—p. 491.
*Cultivation of Medicinal Plants. J. A. Dominguez.—p. 500.
Diagnosis of Syphilis. P. V. Cernadas.—p. 502.
*Tuberculosis and the Cinemas. P. Ivanissevich.—p. 509.
Prophylaxis of Tuberculosis in the Schools. E. R. Coni.—p. 510.

Cultivation of Medicinal Plants in Argentina.—Dominguez is director of the Institute of Botany and Pharmacology of the University of Buenos Aires, and he here replies to an inquiry from the government in regard to the feasibility of cultivating the cinchona in Argentina. He specifies certain regions where conditions would be favorable, and advises starting with the *C. succirubra* as the hardiest species. If this succeeds, then others could be tried. Near the equator a high altitude is desirable. In Java the official plantations are at 1,230 to 2,350 meters but some private plantations are as low as 550 meters. All known plantations are above this altitude except in Australia where, although at an altitude of only 33 meters, the bark has yielded 6.50 per cent. of alkaloids. The *C. calisaya* seems to do best at an altitude of 2,000 meters. With higher altitudes the levorotatory alkaloids seem to increase while the proportion of dextrorotatory decreases. The cinchona plants can bear a temperature of 2 C. but at freezing point or below they are seriously injured, as also with very high temperatures. The admissible range is from 4 to 33 C. that is, a minimal average of 15 and a maximal average of 27 C. The rainfall has to be at least 1.200 mm.; in the Java plantations the annual precipitation is 2,300 to 4,500 mm. with a maximal humidity of 96 per cent. There is no yield the first four years.

Tuberculosis and Moving Picture Shows.—Ivanissevich remarks that the moving picture shows "with which the entire republic is plagued," are in halls which are kept closed against the sun and air and are never disinfected. They are actual hotbeds for germs of all kinds, and cannot fail to be a potent means for transmission of tuberculosis. Five guinea-pigs were smuggled clandestinely on three occasions into a moving picture hall for a few hours and two of them died of tuberculosis the thirtieth and fiftieth days. Further experiments were not allowed. He pleads that the halls should be opened to the sun and air for at least six hours every day, and exhaust ventilation be provided at all times. The laughter at the comic shows helps to scatter germs. A hall holding 300 shelters 9,000 in a month and 54,000 in six months. As 4 per cent. of the populace are estimated to be tuberculous, this would average 2,160 tuberculous visitors to the hall during the six months, and the bacilli expelled in coughing and speaking find unparalleled conditions for proliferation in these dark and unventilated halls.

Vida Nueva, Havana

October, 1918, **10**, No. 10

Surgery for Contracted Pelvis. E. Hernandez.—p. 269.
Status of Treatment of Diabetes. A. G. Del Valle.—p. 281.

Gann, Tokyo

December, 1918, **12**, No. 4

*Artificial Production of Sarcoma in Rats. N. Umehara.—p. 43. Conc'n.
Curative Action of Radium on Hen Sarcoma. H. Ogata.—p. 49.
Leukocyte Count in Sarcoma Rats. T. Maeda.—p. 50.

Sarcoma Produced from Transplanted Adenofibroma in Rats.—The first part of Umehara's article was reviewed in these columns, Jan. 25, 1919, as he told of transplanting a spontaneous benign tumor found on a white rat through numerous generations of rats. He finally succeeded in modifying the tumor grafts by injecting sudan III in olive oil directly into the tumor, as it developed from transplantation in the eleventh generation. No other substances tested induced malignant transformation, and this occurred only in two of the three rats thus treated. The sudan oil was injected, a drop at a time, at five or six day intervals, repeated seventeen times in two rats, which then died, the forty-second day and the fifty-seventh day. A third rat died after the eighth injection, without the tumor showing any modification. The inoculation tumor at the time the injections were commenced was about the size of the head of the thumb. It grew to be as large as a goose egg, and the microscope revealed that part of it was a sarcoma, of a polymorphous type, which seemed to have developed in consequence of the chemical irritation from the sudan oil. Transplantation further of the sarcomatous portion of the tumor elicited sarcomatous growths in other rats, while transplantation of the nonsarcomatous portion of the tumor caused the production only of fibromatous tumors of the same benign type as at the beginning of the series. The malignant inoculation tumors were macroscopically soft and of a very rapid growth, with early necrosis and softening and numerous metastases in lymph glands, etc., so that the animals succumbed to cachexia. Both spindle cells and round cells were evident. The transplantability of the original tumor had begun to wane by the later generations but, after this malignant transformation, it revived again so that he was able to transplant this artificial sarcoma through fourteen generations, with from 45 to 90 per cent. positive results, a total of positive results in 291 of the 445 rats used in the experiments. The microscopic and biologic findings were very much like those observed in the human. The phenomena reported confirm Virchow's irritation theory of the origin of cancer, and also Yamagiwa's dictum that the influence of the medium is what forms the cancer cell. The sarcomatous tumors finally displayed a tendency to return to a fibromatous type of tumor. There is no doubt in Umehara's mind that this artificial rat sarcoma developed from the connective tissue elements of the adenofibroma. The article is illustrated, with a full summary in German and considerable bibliography.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 23, 1918, **2**, No. 21

*Reform in Medical *Education.* G. Van *Rijnberk.*—p. 1655.
*Thoracoplastics for Pulmonary Tuberculosis. L. S. Hannema.—p. 1661.
Should Pharmacognosy Be Dropped from Medical Examination? E. C. van Leersum.—p. 1671.
Reform in Social Medicine. J. L. C. Wortman.—p. 1675.
Comparison of Recent Epidemics of Influenza. A. Giltay.—p. 1678.
The Point of Lessened Resistance. A. Welcker.—p. 1679.

Reform in Medical Education.—Van Rijnberk quotes R. M. Pearce's three articles in "Medical Research and Education," published in 1913, and comments on the similarity between *his* ideas and those of Schwalbe (mentioned recently, page 317). Pearce's motto is also "Do it yourself," and he advocates that the hours devoted to lectures and laboratory work should be in the proportion of one to six or eight. At Amsterdam, Rijnberk adds, the proportion is about one to one. He cites further that "science lives in the laboratories and clinics. When it is dead, it is buried in a book." In conclusion Rijnberk remarks that many of his readers will regard Pearce's ideas as "all too American." Especially his denunciation of too much oral teaching. But in the Netherlands the tendency is too much in the other direction. In Germany, the methods of examining for a degree have not been changed at all for seventeen years, and in the Netherlands not for half a century.

Operative Treatment of Chronic Pulmonary Tuberculosis.—Hannema reports in detail the case of a married woman of 32 who had presented symptoms of pulmonary tuberculosis for about eight years. The right lung seemed to be entirely involved, while the left lung seemed to be clinically sound. The heart shadow was lost in the shadow cast by the right lung, and there was daily considerable blood in the profuse expectoration while the woman was growing weaker, although there was not much fever. A large cavity was evident and the conditions precluded artificial pneumothorax. A thoracoplastic operation, according to Wilms' technic, was done as the lung displayed a tendency to shrivel, and all that kept it from collapsing was the skeleton. From 4.5 to 6.5 cm. were resected from each of the nine ribs, beginning at the lowest. The pleural cavity was not opened but the right side of the chest sank in at once. Healing was delayed by the cough and expectoration, and the pulse was weak and fast, but the appetite was good. Twenty-three days later the ribs were resected from the rear, the cartilage and a small part of the second to the sixth ribs, inclusive, under local anesthesia. The muscles were sutured with catgut, the skin with pure silk. The blood disappeared from the sputum after the first operation, and the general condition rapidly improved. The intervention unmistakably saved the woman's life. She now, fifteen months later, feels well but takes care of herself and there is still a little sputum. After repeated examinations, a few tubercle bacilli were found, showing that the woman has not been completely cured, but everything seems to promise this in the end, as the patient is cooperating with zeal and intelligence. In a recent compilation of 41 similar operative cases, 8 were cured, 7 much improved and 13 improved; in 3 the condition has remained stationary; in 4 it has become aggravated, and 6 have died. Hannema gives the minute details of his case, with the roentgen findings, and classes it in the group of the much improved.

Ugeskrift for Læger, Copenhagen

Nov. 21, 1918, **80**, No. 47

*Phototherapy of Surgical Tuberculosis. E. Collin.—p. 1841.
*Technic for Lumbar Puncture. B. Pontoppidan.—p. 1855.
*Wassermann Reaction. H. I. Schou.—p. 1858.

Light in Treatment of Tuberculosis of Bones and Joints.—Collin declares that rational phototherapy is still in its infancy, notwithstanding the great advances made in recent years under the leadership of Finsen, Rollier and Reyn and Ernst. The two latter in the last five years have demonstrated that the light treatment alone, without the cooperation of climatic influences, cured as effectually at the Finsen Institute at Copenhagen as Rollier's mountain climate sunbaths. They proved that artificial light can take the place of sunlight from the therapeutic standpoint. The arc light rays seem to be more potent than any other source of radiant energy, although some prefer the quartz mercury vapor light. As the latter is less expensive to install, the two seashore sanatoriums for tuberculous children in Denmark are equipped with this, and Collin here reviews the experiences with 138 tuberculous children given this treatment after they had failed to show improvement under the general measures alone. They were thus the severer cases; in 102, general light baths were given, in 52 merely local, and in 34 regional baths, in some associated. The average length of the course of light treatment was five months; the range was from six weeks to ten months. All this material is described in detail, with the technic shown in illustrations and the outcome.

Recent reexamination shows that there has been recurrence in 13 of the 138 cases; in 11 of these 13 cases the course of phototherapy had been less than two months. Evidently the treatment was arrested before it had answered its complete purpose. In the remaining 2 cases, the children had other tuberculous lesions besides those that had been treated. The results in the total 138 cases must be regarded as extremely favorable. The seashore environment may have contributed, but as this alone had shown no benefit beforehand, it need not be taken much into account in estimating the outcome. The relatively rapid cure, the absence of disfigurement and the good functioning of the limbs are special advantages of this phototherapy. The experiences related impress the wisdom of sending children with tuberculous processes in glands, bones or joints to a seashore sanatorium and supplementing the ordinary measures with courses of light treatment, sunlight, arc light or quartz lamp.

In 108 cases the tuberculous lesions seem to be cured; in 20 there was great improvement, and in 12 others some improvement. No benefit was observed in 16 cases and the lesion progressed in 4; these were cases of spondylitis or white swelling of the knee. All of the gland cases and tendon sheath cases and cold abscesses were improved or cured. The children were between 4 and 15. In one case ichthyosis subsided under the light treatment applied for a tuberculous process. The children sometimes developed fever under the exposures, and recurring febrile bronchitis was not infrequent. The latter may have been the result of chilling during the exposures—the quartz lamp does not generate much heat—or it may have been from activation of latent tuberculous peribronchitis. There was complicating pulmonary tuberculosis in 6 cases, and in 4 the exposures had to be suspended as the condition was aggravated by them. This group includes the two spondylitis cases. Keratoconjunctivitis developed in 12 cases, and he queries whether this was due to injury of the eyes from the light, or activation of a latent process, or the result of the universal reaction to the toxins. The latter seems to him the most plausible explanation. An epidemic of varicella in the sanatorium did not spare the exposed children, and the pustules seemed to be extra large in them, resembling actual variola. Erysipelas developed in 5 cases, apparently uninfluenced by the phototherapy.

Technic for Lumbar Puncture.—Pontoppidan reports that lumbar puncture in a recent series of 100 cases was done alternately with the patient seated and reclining. Only 2.5 c.c fluid were withdrawn, and none of the patients had any serious disturbances afterward. In 58 per cent. there was not a trace of headache or pain in the spine or other by-effects. This group included 35 seated and 23 reclining patients. In the others, presenting some by-effects, for from one to five days, the proportions between the seated and the reclining were about equal. In 6 cases the by-effects were perceptible for from six to ten days in seated patients, and from six to eighteen days in 4 given the lumbar puncture when reclining. These experiences show that the reclining posture has no advantage over the seated. They demonstrate further that it is not necessary to have the subject go to bed afterward. This was always advised, but the advice was seldom followed by out-patients. In short, Pontoppidan advocates doing lumbar puncture even in the office or dispensary when it is not convenient for the patient to enter the hospital.

Serodiagnosis of Syphilis.—Schou says that no Wassermann reaction was obtained in 1,457 of 1,654 persons tested, but it was positive in 136 who had other signs of syphilis; also in 33 (2.2 per cent.) who had no other manifestations of the disease. In 28 cases with other signs of syphilis the reaction was negative, but 19 of these had been taking treatment. In the other 9 no treatment had been given, and they presented unmistakable symptoms of syphilis, either dementia paralytica, tabes, or a syphilitic brain or muscle disease. In some of these cases the spinal fluid was highly pathologic—in some cases giving a positive Wassermann, but there was no seroreaction to be elicited in the blood.

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TYPHOID FEVER OCCURRING AFTER PROPHYLACTIC INOCULATION *

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Typhoid fever of recent years in our army has been conspicuous by its rarity. It is our purpose here, however, to show that while rare it cannot be considered as nonexistent; that in cases of continued fever it is still to be suspected, and, even more important, that the protection of prophylactic inoculations, great as has been their service, cannot be taken as absolute to such an extent that sanitary precautions can be neglected.

Vaccination against typhoid fever is now practiced as a routine in all modern armies. At the Fifteenth International Congress in 1912, Russell[1] summarized the statistics up to that time with reference to the use of typhoid vaccine in our army and the armies of Europe. During the same meetings Nichols[2] described some of the methods of producing typhoid vaccine, giving in detail practically the same method as is now used in producing all typhoid vaccines; and as the U. S. Public Health Service has adopted a standard for all commercial vaccine, the question of uniformity would seem to be fairly well established. Experience of the armies in the present war has continued to support the belief that such vaccination, especially since the addition of *B. paratyphosus* A and B,[3] has rendered typhoid fever, formerly a prominent war disease, a very minor source of sickness. While it is true that sanitation has been greatly improved, it is impossible to contend that it has reached such a degree of perfection as to account for this result, so that it is generally conceded that the *principal* factor has been vaccination.

Yet in spite of sanitary precautions and vaccination, occasional cases of typhoid fever, like those herein reported, have occurred. Bradbury[4] has reported four cases, and others, in addition to those studied by us, have been included in army reports of contagious diseases.

In the latter part of June, 1918, cases began to appear at the base hospital at Camp Greene, N. C., which from their gradual onsets, climbing temperatures, without evidence of local inflammatory disease, enlarged spleens, rose spots and leukopenia presented the clinical picture of typhoid fever. Cultures from blood, stools and urine resulted in isolation of the typhoid bacillus. The subsequent course of the group of cases added confirmation of the diagnosis of typhoid, by protracted fever, falling by lysis, a tendency to delirium, in three cases relapse, and in three cases small intestinal hemorrhages. It was beyond dispute, therefore, that we were dealing with a miniature epidemic of typhoid fever.

The cases belonging to this epidemic, with certain other cases occurring at the hospital, are reported in brief herewith.

REPORT OF CASES

CASE 1.—L. K., sergeant, Co. 6, 4th M. M. S. C., who came to Camp Greene, March 29, 1918, was taken sick, about June 26, with abdominal pain, headache and fever, and was admitted to the hospital, June 28. He had fever, rose spots and an enlarged spleen; his condition was febrile, including a relapse, until August 12. There were hemorrhages. *B. typhosus* was isolated from the blood and the urine. He had been a member of 8th Company until about two weeks before he was taken ill. His drinking water had been taken from an 8th Company barrel. The patient had been on kitchen police duty for a day about two weeks before. He did not drink water from any well or spring. He drank milk, bought at canteen, the bottles of milk being iced. He ate ice cream at a canteen and also at Charlotte, N. C. He had some meals at a restaurant at Charlotte. He always ate cooked foods, and had eaten no lettuce or tomatoes or other fresh vegetables. He had visited the Charlotte soldiers' club a number of times, but no private homes. The first and second typhoid inoculations had been given at Jefferson Barracks, the third at Camp Grant, between Dec. 15, 1917, and Jan. 2, 1918.

CASE 2.—A. J., private, 8th Company, 4th M. M. S. C., had been taken ill about June 22, 1918, and was admitted to the hospital, June 28, with abdominal pain, vomiting, headache, fever, rose spots and enlarged spleen. He was febrile until July 18. *B. typhosus* was isolated from the blood. His drinking water had been in a barrel. He did not drink water from any well or spring. He did not drink milk. He ate ice cream from a canteen and at different places in Charlotte. He had some meals at Charlotte, but all the food was cooked. He ate lettuce once at mess. He had been on kitchen police duty about three weeks before. He visited the soldiers' club a few times. He did not visit any private homes or the Y. M. C. A. The service record disclosed that typhoid inoculations had been performed at Kelly Field, about Jan. 1 to Jan. 18, 1918, and completed January 16.

CASE 3.—K. E. T., private, 1st Company, 4th M. M. S. C., had been taken ill about June 26, 1918, and was admitted to the hospital, June 28, with headache, poor appetite, nausea and fever; enlargement of the spleen was doubtful; there were no rose spots; he was febrile until July 17; a recrudescence occurred, July 24 and 25. *B. typhosus* was isolated from the blood. He had been a member of 8th Company until about two weeks before. His drinking water had been in a barrel taken from 8th Company. He usually drank from a cup hanging from the barrel. He also drank at several places in Charlotte. He never drank milk. He ate ice cream from a canteen. He had some meals at Charlotte, but always ate cooked food. He did not eat lettuce, tomatoes or other vegetables. He had been on kitchen police duty about a month before. He did not drink water from any well or spring. He visited the soldiers' club once or twice a week and drank orange juice while there, common drinking glasses being used. Ice was placed in the orange juice to cool it. The service record, Dec. 28, 1917, disclosed that typhoid inoculations had been given at Jefferson Barracks between Dec. 14, 1917, and Jan. 3, 1918.

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* Read before the Society of American Bacteriologists, Baltimore, Dec. 28, 1918.

[1] Russell, F. F.: *Bull.* 2, U. S. War Department.

[2] Nichols, H. J.: Bull. 2, U. S. War Department.

[3] Craig, C. F.: Triple Typhoid Vaccine (Bacillus Typhosus, B. Paratyphosus A, and B. Paratyphosus B), J. A. M. A. 69: 1000 (Sept. 22) 1917.

[4] Bradbury, Samuel: Typhoid in a Company of Immunized Soldiers, J. A. M. A. 61: 532 (Aug. 17) 1918.

Case 4.—R. E. G., private, medical department, base hospital, Camp Greene, N. C., had enlisted at Fort Douglas, Utah, June 4, 1917, and had served at the post hospital, Fort Russell, Cheyenne, Wyo., from June, 1917, to Jan. 3, 1918; in the medical department, 4th M. M. S. C., Camp Hancock, from Jan. 19 to April 10, 1918, and the medical department, base hospital, Camp Greene, from May 26, 1918. He had been taken ill, June 17, and was admitted to the hospital the same day with abdominal discomfort, vertigo, vomiting, sore throat, fever and an enlarged spleen. There were no rose spots. His condition was febrile, including a relapse, until July 19. *B. typhosus* was isolated from the urine. He drank water from a spigot while in the medical department of the 4th M. M. S. C. He drank water from a well at a farmhouse back of the barracks, at the base hospital. He did not drink milk. He ate ice cream at several places while in Charlotte. He did not eat lettuce, tomatoes or other uncooked food. He was not an attendant in any ward. He did not attend any one while attached to the base hospital. He did not visit Charlotte. He was not on furlough. Inoculations had been given at Fort Russell in July, 1917; he had taken six consecutive doses.

Case 5.—H. S., private, Co. 7, Casual Camp 1, had enlisted at Atlanta, Ga., June 6, 1917. From June 15, 1917, to April, 1918, he had been a member of Company C, 47th Infantry, stationed at Syracuse, N. Y., until October, 1917, when it proceeded to Camp Greene, N. C. The patient had been transferred to Casual Camp 1, and had been taken ill, July 5, 1918, and was admitted to the hospital, July 5, with headache, constipation and fever. There were rose spots; the spleen was not felt; the patient was febrile until July 20. *B. typhosus* was isolated from the urine and feces. The patient drank water from a Lister bag. He drinks milk, but had not drunk any since April. He ate ice cream at mess in Casual Camp 1 and also at Charlotte. He did not eat tomatoes, lettuce or other uncooked food. He did not visit in Charlotte. He was on furlough to Baxley, Ga., in January, 1918. Typhoid inoculations had been given at Syracuse, N. Y., in August and September, 1917. He had had two inoculations at Augusta in June, 1917.

Case 6.—K. L., private, 18th Company, 5th M. M. S. C., enlisted at Bridgeport, Conn., Dec. 13, 1917, and was sent to Camp Dix and then to Camp Hancock, Ga. He remained in quarantine fourteen days to see if measles would break out. Four days later he was sent to Camp Greene, N. C., arriving, March 25, 1918. He had been taken ill, March 11, and was admitted to the hospital, April 1, with headache, chills, weakness, poor appetite and fever. There were rose spots and an enlarged spleen. His condition was febrile, including a relapse, until April 30. The fever was undetermined, April 12. June 10, there was acute cholecystitis, for which cholecystotomy was performed. *B. typhosus* was isolated from the gallbladder. The patient had been in the kitchen one week before coming to Camp Greene. He was ill most of the time between his arrival at Camp Greene and coming to the base hospital. He drank water from a spigot at Augusta and Camp Greene. Typhoid inoculations had been given during the month of January, 1918.

Case 7.—M. K., medical department, 4th M. M. S. C., had been taken ill, June 21, 1918, and was admitted to the hospital, June 25, with headache, nausea, poor appetite and fever. There were rose spots and an enlarged spleen. He was febrile until July 9; he became a chronic carrier. *B. typhosus* was isolated from the feces, August 12. The patient messed with 5th Company. He did not drink water from a well or spring. He did not drink milk. He had had dinner in Charlotte about a month before. He did not have uncooked vegetables, milk or ice cream. He ate ice cream at Liberty Park. He did not handle any food. Water in the mess hall was taken from a galvanized iron can. A Lister bag hung outside of the 5th Company's quarters for men to use. Typhoid inoculations had been given at Spokane and Fort Russell during June and July, 1917. Repeated examinations of the urine and feces have proved that this patient has developed into a carrier.

Case 8.—C. W. T., private, 3d Company, 4th M. M. S. C., first stationed at Camp Devens about March 29, 1918, came to Camp Greene about April 26, 1918, and was transferred to 3d Company, 4th M. M. S. C. He was taken ill, June 30, 1918, and admitted to the hospital July 7, 1918, with headache, poor appetite and fever. There were rose spots and an enlarged spleen. The patient was febrile until July 26, 1918. *B. Typhosus* was isolated from the blood. The patient had had one drink of water from a pump located near the Casual Company. He drank water from a galvanized iron can in the mess hall of the 3d M. M. He drank water at the Knights of Columbus and the Y. M. C. A. He drank orange punch at the soldiers' club, Charlotte. He ate ice cream at mess, also at soldiers' club. He did not drink milk. Typhoid inoculations had been given at Camp Devens, and were completed, April 15, 1918.

Case 9.—R. H. L., corporal, 16th Company, 4th M. M. S. C., had enlisted at Greenfield, Dec. 12, 1917, and was sent to Fort Slocum immediately. He had been there four days, when he was sent to Kelly Field, where he remained one month. He was at Camp Hancock about two months. He came to Camp Greene about April 1, 1918, and was at the 9th Casual Company about one month. He was transferred to 8th Company, 4th M. M. S. C., and had been transferred to 16th Company, 4th M. M. S. C., about six weeks before. He was taken ill about July 4, 1918, and was admitted to the hospital, July 7, with headache, vomiting, constipation and fever. There were rose spots and an enlarged spleen. He was febrile until July 25. *B. typhosus* was isolated from the blood. He drank water from a barrel in the mess hall of 8th Company. He drank orange punch at the soldiers' club two or three times. He ate ice cream in drug stores in Charlotte, and at the mess of 16th Company. He ate tomatoes at the mess of the 16th Company. He ate lettuce a few times. He did not drink milk. He had no water from wells or springs. The first dose of typhoid vaccine had been given at Fort Slocum. Afterward, he had four doses at Kelly Field. Inoculations were completed the first week in January, 1918.

Case 10.—J. A. P., private, 8th Company, 4th M. M. S. C., enlisted at Fort Logan, Dec. 13, 1917. He was there two or three weeks and sent to Kelly Field. He was sent to Camp Hancock about Jan. 15, 1918. He was ill on arrival at Camp Hancock. He arrived at Camp Greene about the middle of May. He was taken ill, July 4, and admitted to the hospital. July 7, with headache, nausea, constipation and fever. There were rose spots and an enlarged spleen. He was febrile until August. There was hemorrhage. *B. typhosus* was isolated from the blood. He drank water from a barrel in the mess hall, and also a few times from wells and springs. He ate ice cream in Charlotte three or four times. He did not drink milk. He ate lettuce once or twice. He visited the Y. M. C. A. a few times. He did not visit the soldiers' club. Typhoid inoculations had been given at Kelly Field. They were completed the first week in January, 1918.

Case 11.—T. C. M., private, 7th Company, 4th M. M. S. C., was admitted two weeks before the other patients. He had been inducted into service at Union County, Miss., Sept. 27, 1918; sent to Camp Pike, Ark., and assigned to the 334th M. G. Battalion, transferred about Nov. 12, 1917, to the 150th

Infantry, Camp Beauregard, La.; transferred, Jan. 29, 1918, to the 1237th Casual Company, 4th M. M. S. C., Camp Hancock, Ga.; transferred, March, 1918, to the 9th Casual Company, 4th M. M. S. C., Camp Greene; transferred, April, 1918, to the 8th Company, 4th M. M. S. C., and transferred about June 5, 1918, to the 7th Company, 4th M. M. S. C. Two days after admission, tertian malaria was found. Urine and feces were sent to the laboratory at frequent intervals, and sometimes every day; all examinations were negative. Typhoid fever was never proved bacteriologically. The patient was admitted to the hospital, June 17, 1918. July 4, he had headache, vomiting and a rising temperature. There were questionable rose spots, and the spleen was palpable. The patient was febrile until July 22. He drank water from spigot in the 7th Company, and also from a Lister bag in the 8th Company. He drank no water from wells or springs. He did not use a common drinking cup. He ate ice cream at the mess of the 7th Company. He did not eat lettuce, tomatoes, cucumbers or other uncooked food. There had not been much illness or bowel complaint in the company. He did not visit Charlotte. He was not on furlough. Typhoid inoculations had been received at Camp Pike, Oct. 1, 11 and 19, 1917.

Case 12.—F. D. B., private, Co. M., 39th Infantry, enlisted, Sept. 1, 1917, and had been in the base hospital since Dec. 8, 1917, with pneumonia, empyema, etc. Onset of headache, vomiting, and looseness of bowels occurred, Aug. 5, 1918; there were fever and rose spots; the patient was febrile until August 30; there was hemorrhage. *B. typhosus* was isolated from the blood. The patient had been on a regular diet for some time. He had received three typhoid inoculations, at weekly intervals, at Syracuse, N. Y., in September, 1917.

Cases occurring about this period in men who had received either no vaccine or in whom the inoculations had not been completed are herewith included:

Case 13.—J. W., recruit, Co. 1, Recruit Camp 1, inducted into service, July 29, 1918, and lived at Norfolk, Va., about eleven months, returned to his home, Statesville, N. C., about one week before coming to Camp Greene, N. C. While at Norfolk, Va., he lived in a car provided for workmen by the Norfolk & Southern Railroad in their railroad yards. He drank water from a spigot, and ice water, from a bucket. He worked as a fireman and cleaner. He was admitted to the hospital, August 7. He had been taken ill about August 1. He had chill, headache, pain in abdomen, and fever. There were no rose spots nor enlarged spleen; he was febrile until September 4. *B. typhosus* was isolated from the blood. He usually ate ice cream on Sunday. He ate mostly cooked food. He drank milk every day. He did not know of any typhoid at Statesville, N. C. He had received the first dose of typhoid vaccine, Aug. 2, 1918.

Case 14.—W. W., recruit, 9th Company, Recruit Camp 1, came to Camp Greene, N. C., Aug. 1, 1918. He had been working in the steel mills at Homestead, Pa., for about eleven months. He was at his home at Weldon, N. C., one night before coming to Camp Greene. He was ill when he left Homestead, Pa. He was admitted to the hospital, August 5. *B. typhosus* was isolated from the blood. He drank water from a spigot. He used his own drinking cup. He ate all cooked food. He did not eat ice cream. He did not have typhoid inoculations or vaccination.

Case 15.—A. C., recruit, Company 10, Recruit Camp 3, entered the service about Aug. 21, 1918. He visited his mother at Lagrange, Tenn., about three weeks before coming to Camp Greene. He drank water from a well. He was ill when he arrived at Camp Greene, and was admitted to the base hospital, August 26, with headache, backache and weakness; he was febrile until September 30; a relapse occurred, October 7 to 17. *B. typhosus* was isolated from the blood. He does not drink milk. He drank water from a spigot. He received one dose of typhoid vaccine.

Case 16.—N. M., recruit, Company 21, Recruit Camp 4, entered the service about Sept. 1, 1918. His home was at Cleveland, where there had been a number of cases of typhoid. He was ill on arriving at Camp Greene, and was admitted to the hospital, September 8, with malaise, weakness and fever. There were rose spots and an enlarged spleen; he was febrile until September 28. *B. typhosus* was isolated from the blood. He does not drink milk. He drank water from a spigot. There had been no typhoid prophylaxis.

Case 17.—C. A., recruit, Company 9, Recruit Camp 1, entered the service from Hoskins, N. C., July 29, 1918. He was taken ill, September 7, with headache and vomiting, and was admitted to the hospital, September 12, with fever and enlarged spleen. The febrile condition, including a period of relapse, lasted until October 9. *B. typhosus* was isolated from the blood. He drank milk at home, where he owned a cow. He drank milk at the canteen. He ate ice cream cones from a store near his quarters. There were some flies in the mess hall. The drinking water was in a barrel, and there was ice in the water. The cup used for drinking purposes hung at the side of the barrel. The patient used his own cup to drink from. He drank water from a deep well at home. He had fresh vegetables, raised at home, on a farm. He had fresh tomatoes at mess. He received two doses of typhoid vaccine.

Case 18.—L. McD., recruit, Co. 1, Recruit Camp 4, entered the service, Sept. 4, 1918, at Spartanburg, S. C. He was taken ill, Sept. 10, 1918, with headache, and was admitted to the hospital, September 21, with fever, rose spots, and an enlarged spleen. He was febrile until October 31. *B. typhosus* was isolated from the blood. He drank water from a hydrant, except at meals, and ice water was given by the man who dipped it from the tub. He had a deep well at home. He drank no milk. He ate no fresh vegetables. He ate no ice cream. There were no flies in the mess hall. There was no history of typhoid fever at home. He received two doses of typhoid vaccine, Sept. 9 and 16.

PRECAUTIONS TAKEN

Suggestions made to the regimental surgeon of the Fourth M. M. S. C., with reference to examination of carriers, quarantine, etc., resulted in an order being issued by him to this effect:

1. Cases have been admitted to the base hospital, of recent date, that were suspicious of typhoid fever. In view of this fact, I would recommend that no changes be made of cooks and food handlers until further notice.
2. Lister bags with suitable coverings only will be used for drinking water; all drinking water will be chlorinated. Soldiers will use individual drinking cups.
3. The handling of cooked food, by kitchen police, will be discontinued.
4. The 8th Company will be quarantined, on account of its being a possible source of infection, until laboratory examinations can be made.
5. Two doors to mess halls will be used (the end door leading into the mess hall, and one leading directly into the kitchen), all other doors to be nailed shut and every available means be used to rid the mess hall of flies. All cooked food will be covered.
6. All kitchen men will thoroughly wash their hands before handling any food.

SEARCH FOR THE SOURCE OF INFECTION

The cases of typhoid fever occurring in Charlotte at this time were thought by the health authorities to be fly borne, owing to the large number of open privies in certain parts of the city.

While the mess hall of the company, in which most of the cases occurred had large numbers of flies when we went to make examination for possible sources of infection, that did not seem likely to be the source, because latrines were at some distance, and were properly cared for and well screened.

What could carry such a massive infection? Was it vegetable, milk, ice or ice cream?

Some of the companies in which the cases occurred placed ice in the drinking water, a large amount of water being prepared either in a galvanized iron can or a barrel. Examinations of water from these barrels and cans showed contamination due to the method of handling the ice, and exposure to dust and flies. These were negative: *B. typhosus* was not isolated. The Public Health Service, having charge of extracantonment work, was examining the milk supply; besides, as will be noted from the histories, milk as a beverage was not used by eleven of these men. A few of the men used the showers and pool at the Charlotte Y. M. C. A. This pool seemed to be very efficiently managed.

Ice supplied to Camp Greene is made from distilled water, and while this ice might become infected in handling, or from dust and dirt getting into the tanks from the shoes of the workmen, this method of distribution was not likely.

It will be noted from the histories that most of the men ate ice cream practically every time they visited Charlotte, and sometimes visited ice cream counters several times during the few hours they were in the city.

Few green vegetables were used in camp; as the histories will show, *most of the men did not have fresh vegetables.*

The camp water supply had been examined at frequent intervals from samples submitted by an officer connected with the office of the camp surgeon, and daily *examination* of water from the laboratory tap was made. As noted above, additional examinations were made of the water supply, and also of the water in the containers used for drinking purposes; *B. typhosus* was not found.

Nine cases occurred in one organization:

One in the medical detachment.

One in the 1st Company (transferred from the 8th Company two weeks before being taken ill).

One in the 3d Company.

One in the 6th Company (transferred from the 8th Company two weeks before being taken ill).

One from the 7th Company (transferred from the 8th Company two weeks before being taken ill).

Two in the 8th Company (transferred from the 8th Company two weeks before being taken ill).

One in the 16th Company (transferred from the 8th Company six weeks before being taken ill).

One in the 18th Company.

The last mentioned patient undoubtedly acquired his infection in Augusta, Ga., and it occurred three months before any other cases; the patient was still in the hospital when the other cases occurred. Repeated cultures made in this case failed, until he was operated on for gallbladder drainage, when a positive culture of *B. typhosus* was obtained.

The patient from the 7th Company (Case 11) was admitted to the hospital, June 17, two weeks before the apparent real outbreak. Tertian malaria was demonstrated two days after admission. Later he was believed also to have typhoid; the fever ran the usual course, but was never proved bacteriologically, although urine and feces were sent to the laboratory at frequent intervals, sometimes every day, but with negative results for *B. typhosus*.

One case occurred in the hospital, this patient having been a bed patient since December, 1917. It was decided to look for a carrier among the nurses and orderlies. Eighty nurses and seventy-two orderlies were examined, all were negative with one exception. A nurse was found to be a carrier, having had typhoid fever seven years before; but this nurse had not been on ward work since April, so that the possibility of her being responsible for this case can be ruled out.

About this time six other cases occurred in recruits, Cases 13 to 18, inclusive. Two had one dose, two had two doses, and two had no inoculations of triple typhoid vaccine.

The question then arose whether there may not have been some defect in the preparation or fault in the administration of the vaccine. In each of our cases this point was therefore investigated. It was found, as shown by the histories, that all had had the regular prophylactic injections within a year at proper intervals, as attested both by the soldiers' statements and by their service records. It was not possible to trace the preparations of vaccines used, but the fact that these soldiers had received their preventive inoculations at different times and at different camps, together with the known care with which the Army vaccine is prepared, renders it unlikely that the failure of immunity was due to failure to receive the standard vaccine in standard doses.

TABLE 1.—CULTURAL EXAMINATIONS

Case	Month Inoculated*	Date Taken Ill	Date of Admission	Blood: No. of Examinations†	Blood: Date of Positive Culture	Urine: No. of Examinations	Urine: Date of Positive Culture	Feces: No. of Examinations	Feces: Date of Positive Culture
1. L. K.	1/1918	6/26	6/28	1	7/3	12 (1)	7/ 3	11 (0)	0
2. A. J.	1/1918	6/22	6/28	2	7/3	15 (0)	7/22	8 (0)	0
3. K. E. T.	1/1918	6/26	6/28	1	7/3	13 (8)	7/25	8 (4)	7/25
4. R. E. G.	7/1917	6/17	6/17	2 (0)	0	14 (7)	7/21	12 (0)	0
5. H. S.	9/1917	7/ 5	7/ 5	1 (0)	0	13 (5)	7/22	9 (4)	7/21
6. K. L.	1/1917	3/11	4/ 1	1 (0)	0	14 (0)	0	10 (0)	0
7. M. K.	7/1917	6/21	6/25	4 (0)	0	28 (19)	9/14	25 (10)	8/15
8. C. W. T.	4/1918	6/30	7/ 7	1	7/ 8	18 (0)	0	15 (0)	0
9. R. H. L.	1/1918	7/ 4	7/ 7	1	7/ 8	12 (5)	7/21	13 (0)	0
10. J. A. P.	1/1918	7/ 4	7/ 7	1	7/ 7	17 (11)	7/30	13 (7)	7/21
11. T. C. M.‡	10/1917	6/19	7/ 4	2 (0)	0	9 (0)	0	8 (0)	0
12. F. D. B.	9/1917		8/ 9	1	8/ 9	13 (0)	0	12 (10)	9/20
13. J. W.	8/1918	8/ 6	8/ 7	1	8/ 6	15 (11)	9/29	15 (0)	0
14. W. W.	None	8/ 3	8/ 4	1	8/ 5	16 (12)	10/ 5	13 (10)	10/ 5
15. A. C.	8/1918	8/21	8/26	1	8/28	7 (3)	9/20	12 (5)	9/11
16. N. M.	None	9/ 1	9/ 8	2	9/11	10 (5)	9/26	8 (1)	9/10
17. C. A.	8/1918	9/10	9/12	1	9/14	7 (1)	9/20	5 (0)	0
18. L. McD.	9/1918	9/20	9/21	1	9/22	5 (1)	9/25	7 (1)	9/25

* Month refers to time when inoculations were completed.

† In this table, 0 means negative; the figures in parentheses denote the first examination that gave positive findings. In Case 6 a positive culture was obtained *following operation.*

‡ Examination for cook, May 6, negative. Examination for hookworm, May 15, positive; *negative obtained after treatment.* Diagnosis for typhoid fever, *July 4.*

Much more strongly suggested was the exposure of these patients to massive doses of the infecting agent, against which the immunity produced by the standard process of vaccination was inadequate. Most of the cases occurred in a short period of time, coincident with a mild epidemic in the nearby city of Charlotte; most of them occurred in one organization. While, as will be described later, no conclusive source of infection was proved, the assumption was warranted that some source of marked virulence existed.

In attempting to identify such a source of massive infection, the possible presence of a carrier or carriers was first considered. The records showed that 159 men in the organization in which the cases occurred had the preliminary routine examination made for carriers before being accepted as cooks, but there was some question whether some handlers of food had been included. With the discovery of cases, further examinations of stools was instituted, specimens being obtained from sixty-four cooks and food handlers and other soldiers in the organization most concerned; but this organization was moved from camp before all examinations planned could be carried out. However, no carriers were found during this examination.

Table 1 shows the results of cultural examinations of blood, urine and feces. It is to be noted that positive blood cultures were obtained in thirteen cases, or 72.2 per cent.; urine cultures in thirteen cases, or 72.2 per cent., and feces in only nine cases, or 50 per cent.

BACTERIOLOGIC TECHNIC

Blood Cultures.—Ten c.c. of blood were drawn into a Lüer syringe and then cultivated in a bottle containing 100 c.c. of plain bouillon. After from twenty-four to forty-eight hours a loop was streaked on freshly poured Endo plates and these incubated for twenty-four hours. Suspicious colonies on Endo plates were fished to Russell medium and finally subjected to agglutination tests and carbohydrate reaction, glucose, saccharose, lactose, maltose, mannite, and litmus milk being used. Endo plates more than twenty-four hours old were never used. Frequently two and three Endo plates were made, the same spreader being used without reinoculation so that well isolated colonies could be studied.

Feces.—Bile mediums and also mediums recommended by Teague, 30 per cent. glycerin in physiologic sodium chlorid solution, was used. A small portion of feces about the size of a hickory nut was placed in 20 c.c. of either of the foregoing mediums, the specimen broken up, and incubated over night. Freshly poured Endo plates were then streaked, incubated twenty-four hours, and the same technic followed as noted under blood cultures.

Urine.—The same technic was used as with feces except that specimens were collected directly into bottles containing the culture mediums and incubated from twenty-four to forty-eight hours before plating.

All cultures were sent to the Army Medical School for confirmatory diagnosis.

Cross-agglutination tests were run on two different occasions, patient's serum and cultures being used (Tables 2 and 3). The results would indicate the possibility that a vaccine containing a number of strains might give greater protection.

TABLE 2.—CROSS-AGGLUTINATION TESTS WITH TWENTY-FOUR HOUR BROTH CULTURES, SHORTLY AFTER ISOLATION OF CULTURES*

	Case	Cultures 1 L. K.	 3 K. E. T.	 9 R. H. L.	 2 A. J.	 10 J. A. P.	 8 C. W. T.
Serums	1. L. K.	0	0	0	0	0	0
	3. K. E. T.	1:100	1:200	1:400	1:200	1:200	1:800
	9. R. H. L.	0	0	0	0	0	1:100
	2. A. J.	0	0	0	1:100	0	0
	10. J. A. P.	0	0	0	0	0	0
	8. C. W. T.	0	0	0	0	1:100	1:100

* In this table, 0 indicates negative result.

TABLE 3.—CROSS-AGGLUTINATION TESTS FOUR WEEKS FROM TIME DIAGNOSIS WAS MADE*

	Case	Cultures 1. L. K.	 3. K. E. T.	 9. R. H. L.	 2. A. J.	 10. J. A. P.	 8. C. W. T.	 6. K. L.	 4. R. E. G.	 5. H. S.	 7. M. K.
Serums	1. L. K.	—	—	1:240	0	—	—	—	1:240	1:120	0
	3. K. E. T.	—	—	—	0	—	1:240	—	1:120	1:240	0
	9. R. H. L.	1:960	1:480	1:480	0	1:480	1:960	—	1:960	1:960	0
	2. A. J.	1:240	1:240	1:240	0	—	1:240	—	1:480	1:480	0
	10. J. A. P.	1:240	1:960	1:960	0	1:100	1:240	—	1:120	1:480	0
	8. C. W. T.	1:960	1:480	1:480	0	1:960	—	1:960	1:960	1:960	0
	6. K. L.	1:960	1:120	1:960	0	1:960	1:240	—	1:960	1:960	0
	4. R. E. G.	1:960	1:120	1:960	0	1:960	1:480	—	1:480	1:960	0
	5. H. S.	1:960	1:480	1:960	0	1:240	1:480	1:480	1:960	1:100	0
	7. M. K.	1:960	1:960	1:960	0	1:960	1:960	—	1:960	1:480	0

* In this table, 0 indicates not made, and — negative.

The variability of agglutinations with freshly isolated cultures of *B. typhosus* was given some attention. Tests were thus made:

1. Agar cultures grown twenty-four hours at 37.5 C.
2. Broth cultures grown twenty-four hours at 37.5 C.
3. Dreyer's[5] agglutinating fluid. Broth cultures were transplanted for two weeks at daily intervals, a few drops of the last transplant were planted into bottles containing 100 c.c. of broth, incubated for twenty-four hours at 37.5 C., and then 0.1 c.c. of liquor formaldehydi was added. The bottles were placed in the ice box, shaken daily for a few minutes, and after a period of five days were used in the agglutination tests.

The few tests made showed a wide variation both as regards individual strains and as regards the preparation of the agglutinating fluid by different methods.

Our work confirms that of others, showing the desirability of using standard agglutinating fluid for Widal tests. The work also strongly suggests that the same method should be used in checking the agglutination of patient's serum with the homologous strain.[6]

COMMENT

It is to be concluded, therefore, that occasional cases occur in which the usual preventive inoculations against typhoid fever fail to protect against the disease, most probably on account of the ingestion of virulent organisms in massive doses. To eliminate such occurrences, sanitary precautions should prevail; but they can succeed only by constant attention to the guarding of food and drink against contamination. Serious contaminations of water supply and of milk on a large scale near the source can ordinarily be prevented by the efforts of sanitary officers, civil and military, working in cooperation. The contamination of water, ice, milk and food on a smaller scale by carriers among food handlers and flies, however, is a matter that demands more laborious and detailed attention. Success in the protection of latrines and in the control of flies is never absolute, but only relative and in proportion to the care devoted to the subject. No false sense of security from typhoid vaccination should be permitted to relax vigilance in this direction. But more important still, in our opinion, is the supervision of food handlers, not only to insure cleanliness, but also by bacteriologic tests of each individual to exclude the admission of a carrier to any position from which he can contaminate the food or drink of his company. It is to be realized, moreover, that a single bacteriologic test, if negative, is not absolute protection, as illustrated by the number of negative feces examinations even in acute cases. Inquiry should therefore be made in all cases as to typhoid fever in the past, and when positive or suggestive history is found, the person should be excluded from handling food until repeated cultures have proved negative. More difficult even than the control of the company mess is the supervision of restaurants and lunch counters outside of the camp. The only way of preventing danger from such sources is to prevent soldiers from taking food or drink outside of their own mess, whenever typhoid fever is known to be occurring in the neighborhood.

CONCLUSIONS

1. Care should be taken that cooks and food handlers are not changed and new ones put in their places without examination for carriers of *B. typhosus*.

2. Special inquiry should be made by the surgeon of all prospective cooks and food handlers with reference to their having had typhoid fever, and

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[5] Dreyer, G., and Torrens, J. F.: Lancet 2: 1369, 1915.

[6] Library facilities have been so meager that we are unable to mention the work of other authors who have published reports of similar work.

note of this made when specimens are submitted for examinations.

3. Repeated examinations should be made of prospective food handlers whose history is suggestive of typhoid fever before the men are accepted for such work.

4. Clinical cases of typhoid fever should have intensive study made of both urine and feces, as is shown in Case 7, in which the patient became a carrier.

THE CLINICAL SIGNIFICANCE OF LYMPHOID HYPERPLASIA OF THE APPENDIX

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In the course of the past fifteen years, one of us, working in the pathologic laboratories at the New York and Bellevue Hospitals, has been almost daily impressed by the fact that, of all appendixes removed at operation, a very considerable number revealed no noteworthy microscopic alterations other than lymphoid hyperplasia, with or without the association of moderate sclerotic changes in the connective tissues. Signs of inflammatory exudation in the appendix were missing, and yet the patients had been subjected to operation because of definite symptoms of appendical disturbances of a subacute or chronic nature. With the exception of a paper by Barss,[1] to whom full credit should be given for first calling attention to the significance of these changes, the literature on the subject appears to be silent. Barss removed seven such appendixes at operation, all of them from children under the age of 14. In our records at Bellevue Hospital, which include the results of the microscopic examination of several thousand appendixes, the occurrence of excessive lymphoid hyperplasia was described as the sole or the predominant change in about 10 per cent. of the total number. We have correlated the clinical and histologic data in a series of twenty cases, no larger number having been investigated for the reason that the historical details were found to be monotonously alike. There seems to be no doubt, however, that the condition constitutes a syndrome of practical importance from the standpoint of its relationship to status lymphaticus and the advisability of operative interference.

FINDINGS IN TWENTY CASES

Of the twenty cases investigated by us, ten occurred in females and ten in males. The ages varied from 2 to 30 years, although additional and exceptional instances have come to our attention in which identical microscopic changes occurred in the appendix as late as the thirty-seventh year. The average age in the series of twenty cases was 17½ years. In all, the history was to the effect that the patients had suffered from two to eight attacks referable to the region of the appendix. In every instance the leukocytes were within normal limits, the differential count disclosing no noteworthy variations in the number of polymorphonuclear cells. The highest count was in a child of 2 years, in whom the leukocytes numbered 14,000, of which 79 per cent. were polymorphonuclear neutrophils. The lowest count was in a boy of 17, the leukocytes numbering 6,000, of which 70 per cent. were neutrophils. In every one of the twenty cases, operation was followed by recovery. From an examination of the clinical histories, it was furthermore developed that the patients had complained of attacks, recurring at intervals of weeks or months, characterized by cramplike pain or by pain and moderate tenderness in the region of McBurney's point, lasting for several hours or days. Muscular rigidity, if present at all, was seldom of marked intensity. Nausea was not uncommon, but vomiting rarely occurred. The temperature was normal in every instance, and the pulse rarely exceeded 80 or 90 beats to the minute. Headache and constipation were fairly common.

Pathologically, the appendixes presented no naked eye or microscopic changes indicative of inflammatory exudate. Some of them were apparently slightly enlarged, others normal in size. The serosa was pale and smooth, a few minute congested vessels appearing at intervals. On section, the lumen was almost immediately found to be diminished in size or even occluded. The mucosa was thickened and swollen, pale or yellowish, and in it pinpoint sized, or slightly larger, rounded, cream-colored bodies were to be detected by the unaided eye. These, on microscopic examination, were found to represent hyperplastic lymphoid follicles, in practically every one of which were large, rounded, circumscribed bodies corresponding to the so-called germinal areas of Fleming. These, in turn, on microscopic investigation, were seen to be made up of innumerable loosely arranged cells, surrounded by a thick mantling of small, densely packed, richly nucleated, and otherwise intact lymphoid cells. The loosely packed cells in the center of the lymphoid nodules varied greatly in size and shape and in the chromatic richness of their nuclei, some of which were pyknotic, while others showed the effects of chromatolysis. Many of the cell forms as well as their nuclei were distorted in outline, and all of them were obviously in the process of disintegration.

In a second variety of appendix removed from individuals who had suffered several attacks of colic in the region of McBurney's point, the hyperplastic and centrally disintegrating lymphoid follicles were supported by a sclerotic or even a hyaline connective tissue framework in which large fat vacuoles sometimes occurred.

In a third variety, occurring oftenest in older patients, the appendix was found to be diminished in size, sometimes reduced to a smooth, pale, cordlike structure which, on microscopic examination, presented only a few atrophic lymphoid follicles and almost complete connective tissue replacement of the mucosa and obliteration of the lumen.

CLINICAL RECOGNITION

Bearing on the clinical recognition of this variety of appendical lesion are several facts of practical significance. In the first place, the occurrence in the germinal follicles of degenerative lesions of the sort described is apparently best explained as a histologic indication of status lymphaticus. These degenerative foci were first described in status lymphaticus by

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[1] Barss, Harold de B.: Lymphatic Disease in Children Simulating Appendicitis, Am. J. Dis. Child. 15: 421 (June) 1918.

Lartigau,[2] then by Blumer,[3] and by Norris[4] and his associates[5] in this laboratory, where, in an experience covering a period of more than twelve years, including the systematic microscopic examination of tissues from more than 5,000 necropsies, among them nearly 300 cases of status lymphaticus, we have yet to find the same changes in the lymph nodes in any other condition. These foci may be demonstrated in status lymphaticus wherever lymphoid tissues occur. They are encountered with noticeable frequency in the ileum, the solitary and agminated follicles of which are, of course, in intimate geographic relationship with the lymphoid structures of the appendix. Wherever encountered, these degenerative foci appear to provide visual evidence of that instability of the lymphoid tissues by which status lymphaticus is attended. In the appendix of subjects of status lymphaticus, sudden increase in the cellular content of the lymphoid follicles, occurring at irregular intervals and at an age when the lymphoid tissues as a whole are subject to elastic structural variations, even in physiologic conditions, coupled with the simultaneous eruption of dozens of circumscribed necroses, suffices to explain the symptoms with which this variety of appendical lesion is associated, the absence of changes in the pulse, temperature and blood count, the mildness of the clinical phenomena and the lack of exudate into the tissues of the appendix serving effectually to exclude any suggestion of inflammatory reaction as a possible factor in the process. In the sclerotic appendixes, the overgrowth of connective tissue is to be interpreted as a change secondary to the mechanical effects of frequently recurring enlargement of the lymphoid follicles, the intermittent disturbances thus produced so reacting on the interstitial framework of the appendix as mechanically to effect a simple fibrosis, the ultimate result of which is to bring about more or less complete replacement of the mucosa and submucosa.

Every properly trained medical student recognizes at a glance the so-called phthisical chest, the physical conformation of which has been known for generations, and no one denies its existence or disputes its significance. Not every individual with such a chest develops tuberculosis, however, and not every individual stricken with tuberculosis is provided with a thorax thus architecturally defective. Much the same criticism is applicable to the living subject of status lymphaticus, whose bodily configuration presents deviations from the normal that are constant and recognizable at a glance. This fact, pointed out not long ago by Norris, has been largely ignored, partly, I take it, because it is of recent birth and because this is the day in which the art of inspection no longer occupies the same dignified position among diagnostic methods as it did when physicians depended more on the acuteness of their special senses and less on technical devices.

Thirty years ago, Langerhans' child died suddenly after the administration of antitoxin, a victim of status lymphaticus, and since that time textbook makers have so persistently emphasized the association of sudden death with status lymphaticus that its broader significance has been lost. As a matter of fact, sudden death in status lymphaticus is a comparatively uncommon event; but, when it does occur, the astonishing rapidity of the blow and the unexpected circumstances in which it is delivered are spectacular and exceedingly impressive. Not every individual with the stigmata of status lymphaticus drops dead if pricked with a needle—some, unfortunately, do succumb to this or equally trivial injuries. Moreover, certain subjects of status lymphaticus are not only highly susceptible to infections, notably cerebrospinal meningitis and diphtheria, but in them such infections are apt to pursue a rapidly fatal course. On the other hand, it is, I believe, safe to say that many subjects of status lymphaticus are not only capable of withstanding injuries, both slight and severe, but infections as well.

In the pathologic laboratories at Bellevue Hospital, those visiting physicians and interns who make it a practice to be present at necropsies, are so well acquainted with the changes in bodily configuration of status lymphaticus and have so often seen these structural peculiarities brought into definite postmortem correlation with persistence or enlargement of the thymus gland, hyperplasia of the lymphoid follicles in the spleen, intestine and elsewhere, and hypoplasia of the aorta and of the vessels of the brain that, to them, status lymphaticus is a demonstrated reality, and their knowledge of its existence frequently is applied to problems presented by the patients in the ward. Its surgical importance, however, has received scant attention, either at Bellevue Hospital or elsewhere, so that we are unable to offer any evidence from the available records of the hospital as to the configuration of those patients from whom were removed the appendixes now under consideration.

In the clinical conglomerate of scrofula the elder Gross long ago recognized the angelic child, in whom he pointed out the existence of a so-called lymphatic constitution. It is now known that children of this type are of the category of status lymphaticus. The angelic child may be described as delicately molded but beautifully proportioned, often excellently well nourished, blue eyed or brown, with long lashes, finely chiseled features, transparent cheeks and rapid mutations in coloring, thin lips, smooth skin and silklike hair, shapely limbs and quick, graceful movements, narrow waisted, mentally alert, often precocious. Still other children, with the stigmata of status lymphaticus, are physically and mentally sluggish, coarse featured and sometimes rachitic, but even in these the skin may be fine and the limbs shapely.

After puberty, the clinical recognition of status lymphaticus is even more easily accomplished. In the male the general conformation of the body is of two types: In one—and more particularly is this true of negroes, although by no means confined to them—a magnificent array of muscles is molded over a body of fine proportions and easy, streaming outlines. Some of the most striking examples of physical beauty are to be sought in subjects of status lymphaticus. In the second type, however, one is apt to receive the impression of a form more nearly approaching a rectangle, the squared shoulders, rather flat chest, and indifferent muscular development lending somewhat ungainly proportions to a body no less confidently to be identified, however, as of the status lymphaticus type; for in both the skin is of almost matchless delicacy; the facial and axillary hairs are scantily developed; the thoracic hairs are few or absent, and those of the pubes assume the distribution of the female, that is to say, they are sharply defined in a transverse direction and do not tend to grow toward the umbilicus; the penis is often small and the glans acorn shaped, while the waist line is slender and the thighs arching. In a word, the general appearance of the male body approaches that of the female.

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[2] Lartigau: Ann. Surg. 35: 745, 1902.

[3] Blumer: Johns Hopkins Hosp. Rep. 24: 270, 1903.

[4] Norris, in Johnson's Surgical Diagnosis 3: 704, 1910.

[5] Symmers, Douglas: Status Lymphaticus, Am. J. M. Sc. 156: 40, 1918; The Cause of Sudden Death in Status Lymphaticus, Am. J. Dis. Child. 14: 463 (December) 1917.

In the female, the recognition of status lymphaticus by inspection is rather more difficult; but the diagnosis may be made with relative assurance by the unusually delicate texture of the skin, by accentuation of the normally graceful outlines of the body, and by the presence of small axillary pads with the scanty growth of hair on them.

FREQUENCY OF STATUS LYMPHATICUS

In the first 4,000 necropsies performed at Bellevue Hospital, status lymphaticus was encountered 249 times (6.2 per cent.).[5] Of this number, thirty-two were under the age of 10, eighty-two were between 11 and 30, ninety-eight between 31 and 50, and thirty-seven over 50. In addition to the occurrence of sudden death in subjects in whom, at necropsy, there is no assignable anatomic cause, status lymphaticus is not uncommonly associated with sudden death in young adults, owing to rupture of congenitally hypoplastic cerebral vessels, occurring spontaneously or as a result of heavy lifting, straining at stool, the tension of argument, fighting, and the like, and there is little doubt that certain of the otherwise unexplained aerial accidents that occurred in the course of the war were due to the same cause. Moreover, hypoplasia of the smaller blood vessels is apparently an element of danger in workers in compressed air, five cases of caisson disease having been examined postmortem at Bellevue Hospital in individuals showing the characteristic stigmata of status lymphaticus.

Emerson,[6] working in the alcoholic wards at Bellevue Hospital, examined 1,000 patients suffering from the effects of attempted suicide and from cocain, morphin, heroin, alcohol and similar habituating drugs. Of this number, 220 (22 per cent.) showed most or all of the physical stigmata of status lymphaticus. I have had occasion to note the characteristic configuration of status lymphaticus in sufferers from neurasthenia and in certain primitive races. In the necropsy rooms at Bellevue Hospital, which are utilized by the several medical examiners and by Dr. Schultze, of the district attorney's office, for the performance of necropsies in medicolegal cases, it is a matter of almost daily observation that suicides and degenerates, and gunmen and other criminals who have met death by violence, present the characteristic conformation and anatomic changes of status lymphaticus. According to the combined statistics of Bartels[7] and Miloslavich,[8] amounting to 232 cases of suicide, 80.5 per cent. showed the signs of status lymphaticus at necropsy. Among epileptics and the insane the condition is common (Karpas).

The association of status lymphaticus and exophthalmic goiter, while not constant, is common, and is particularly noteworthy in connection with the incidence of status lymphaticus among the emotionally unstable. In six cases of exophthalmic goiter investigated postmortem at Bellevue Hospital, signs of status lymphaticus were present in five, in some better developed than in others. Capelle[9] collected sixty instances of exophthalmic goiter from the literature. In 44 per cent. the patients died from intercurrent affections, and in all of them the thymus was persistent and hyperplastic. Of those dying of exophthalmic goiter without associated lesions, 82 per cent. presented enlargement of the thymus, while in cases of sudden death following operation for removal of the thyroid, the thymus was hyperplastic in all.

It has been shown by Daut,[10] Elser[11] and Symmers[5] that a large percentage of all cases of diphtheria and cerebrospinal meningitis occur in subjects of status lymphaticus, and that in them death is apt to follow a noticeably brief illness. Our records at Bellevue Hospital also show that typhoid fever in subjects of status lymphaticus is apt to pursue a rapidly fatal course, although this is by no means constant, for Dr. Van Horne Norrie tells me that he has not infrequently observed such individuals safely through. It is also our experience that about 10 per cent. of all cases of acute infective endocarditis occur in subjects of status lymphaticus—a point worthy of remembrance in dealing with otherwise obscure symptoms of infection in such individuals.

Finally, the clinical significance of status lymphaticus is enforced by the observation that excessive lymphoid hyperplasia of the appendix, associated with the presence of degenerative or necrotic lesions in the germinal areas, occurs so often in children or young adults giving a history of repeated and relatively mild attacks referable to the region of the appendix as to indicate the desirability of routine inspection of all such individuals for the physical attributes of status lymphaticus. This is important in view of the possibility of sudden death under anesthesia or operation and of infection. In such cases the clinical indications for operation are not imperative, and the histology of the appendix shows that the changes do not tend in the direction of perforation, but toward fibrosis. Whether it is best to allow such patients to pass through the annoyance of successive attacks, rather than to accept the not altogether remote risk of sudden death or of infection, is a question which, of course, is to be determined in each case as it arises.

CONCLUSION

There is a clinically recognizable syndrome referable to lymphoid hyperplasia of the appendix, attended by degenerative or necrotic lesions in the germinal areas, with or without sclerosis of the interstitial tissues of the submucosa. The syndrome is marked by repeated attacks of appendical colic, occurring at intervals of days, weeks or months, but is not accompanied by noteworthy changes in pulse, temperature or blood count, and is encountered most frequently in children or young adults. It is probably peculiar to subjects of status lymphaticus.

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6. Emerson, Haven: Status Lymphaticus in Adults, Its Clinical Diagnosis and Importance, Arch. Int. Med. **13**: 169 (January) 1918.
7. Bartels: Wien. klin. Wchnschr. **55**: 1826, 1908.
8. Miloslavich: Virchows Arch. f. path. Anat. **208**: 44, 1912.
9. Capelle: München. med. Wchnschr. **55**: 1826, 1908.
10. Daut: Jahrb. f. Kinderh. **47**: 141, 1898.
11. Elser: J. M. Res. **9**: 89, 1905.

The Problem of the Mental Defective.—Mental defectiveness is hereditary and constitutional, and consequently not amenable to our preachings, asylums, reformatories, penitentiaries, etc. We must ever bear in mind that each year a new quota of defectives is born with statistical regularity. They pass through the hands of parents, then the pedagogues, the theologians, the physicians, the social workers, the employers, the courts, the prisons, and back on society, each one in turn passing them up to the next, and no one willing to acknowledge their impotency in the face of mental defectiveness.—Hickson.

STATISTICAL STUDY OF SIMPLE AND TOXIC GOITER AT JEFFERSON BARRACKS, MO.

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Between April 1 and Sept. 1, 1918, 65,507 men passed through the examining barracks at Jefferson Barracks. An enlargement of the thyroid gland was noted in 1,074 instances (1.63 per cent.). In 116 cases (10.7 per cent.) there were toxic symptoms. These men were rejected with a diagnosis of hyperthyroidism or exophthalmic goiter, depending on whether or not exophthalmos was present.

GEOGRAPHIC DISTRIBUTION

Men from fifteen different states—Arkansas, Illinois, Iowa, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Tennessee, Texas and Wisconsin—are included in these figures. The accompanying table shows a number in which there were thyroid enlargements, the percentage of thyroid enlargement in the number examined, the number of toxic goiters, and the percentage of goiter cases in which there were toxic symptoms. It is noted that Oklahoma has the highest percentage (38 per cent.) of goiters, followed in order by Texas, 20 per cent; Tennessee, 11; North Dakota, 8.7; Nebraska, 8; Indiana, 6.6; Iowa, 6.2; South Dakota, 6.2; Michigan, 3.3; Wisconsin, 2.7; Arkansas, 2.3; Minnesota, 1.3; Missouri, 1.1; Kansas, 1.1, and Illinois 0.6 per cent. Texas ranks highest in percentage (20 per cent.) of goiters in which there were toxic symptoms, followed in order by North Dakota, 19 per cent.; Kansas, 14.2; Wisconsin, 13; Missouri, 12.6; Tennessee, 12.5; Iowa, 11.2; Arkansas, 10.5; Illinois, 10.1; Nebraska, 10; Oklahoma, 8.3; Indiana, 7.2; South Dakota, 4.1; Minnesota, 3.8, and Michigan, 0 per cent.

INCIDENCE OF GOITER

States	Number of Men Examined	Number of Goiters	Per Cent. of the Number Examined	Number of Toxic Goiters	Percentage of Goiters with Toxic Symptoms
Arkansas	4,375	104	2.3	11	10.5
Illinois	24,836	158	0.63	16	10.1
Iowa	998	62	6.2	7	11.2
Indiana	1,465	97	6.6	7	7.2
Kansas	1,792	21	1.1	3	14.2
Michigan	211	7	3.3	0	0
Minnesota	7,551	78	1.3	3	3.8
Missouri	19,577	221	1.1	28	12.6
Nebraska	124	10	8.0	1	10.0
North Dakota	523	46	8.7	9	19.0
Oklahoma	221	84	38.0	7	8.3
South Dakota	387	24	6.2	1	4.1
Tennessee	485	56	11.0	7	12.5
Texas	141	29	20.0	6	20.0
Wisconsin	2,821	77	2.7	10	13.0
Grand total	65,507	1,074	1.63	116	10.8

The men from whom these figures are compiled are between the ages of 18 and 31 years and, as the table indicates, represent widely scattered areas of a wide section of the country, none of which are free from goiter. Contrary to the prevailing conception, the states in the Great Lakes region stand rather low in the list with regard to the percentage both of simple and of toxic goiter.

TOXIC GOITER

In 100 cases of toxic goiter (hyperthyroidism or exophthalmic goiter) a careful study was made of subjective symptoms and physical findings.

Fifteen (15 per cent.) of these men apparently felt as well as ever, except that they had noticed they were more irritable than usual and had been wakeful at nights during the past few months. Sixty-six complained of palpitation of the heart. This and nervousness were the most common subjective symptoms. Fifty-eight had attacks of dizziness. Fifty-four became short of breath easily and had a feeling of exhaustion on exercise. Thirty-nine complained of precordial pain. Twenty-nine perspired very freely and had hot flushes of the face and hands. These symptoms were all aggravated by physical strain and excitement. The nervous strain of the examination and the new environment was especially noticeable.

DURATION OF THE SYMPTOMS

In twenty-five men (25 per cent.) the symptoms had been noticed for two years or more; sixty-four, one year or more, and ten, less than one year. The remaining fifteen were unable to state the time of the onset of their trouble.

OCCUPATION AND ITS EFFECT

Forty-six men (46 per cent.) stated that they did hard physical labor. Many of these men added, however, that it was becoming very difficult for them to do their work. Fifteen had recently had to change to light work. Thirty-six did light work, and nineteen sedentary work. The men in a light and sedentary occupation were, in most instances, having no difficulty.

PHYSICAL FINDINGS

The tachycardia attracted the attention of the examiner and was invariably the reason given for referring the subject to the cardiovascular board. The pulse rate in a recumbent position before exercise ranged from 90 to 160 per minute. In only six instances (6 per cent.) was the rate below 100. In fifteen, it was from 100 to 110; sixteen, from 110 to 120; twenty-two, from 120 to 130; twenty, from 130 to 140; sixteen, from 140 to 150, and two, from 150 to 160 a minute. The pulse rate as a rule was very unstable, increasing rapidly with exercise or excitement. The latter was often noticed when the stethoscope was placed to the precordium.

ENLARGEMENT OF THE THYROID GLAND

The thyroid gland was enlarged in every instance. In many the enlargement was slight, and in few cases well down under the sternum. Usually the subject was not aware of any increase in the size of the neck.

EYE SYMPTOMS

In fifty-three cases (53 per cent.) there was an exophthalmos; these men were discharged with a diagnosis of exophthalmic goiter. In these the subjective symptoms were more marked. The remaining forty-seven had either staring expression (Stellwag), lagging of the lids (von Graefe) or poor convergence (Moebius), or all three signs.

A fine tremor of the hands was a constant finding in all cases.

The apex impulse was in the fifth interspace in every instance, varying from 6.5 to 8.5 cm. from the midsternal line. In forty-nine cases there was a soft systolic murmur at the apex which was often heard at the base on the left side. In every instance this was cardiorespiratory in type.

The systolic blood pressure was usually increased. In fifty-one cases the systolic pressure was above 140 mm. of mercury. Of these, twenty-nine were between 140 and 150; eleven, 150 and 160; eight, 160 and 170, and three, 170 and 180. In forty-nine cases the systolic pressure was between 110 and 140. Of these there were two between 110 and 120; twenty-five, 120 and 130, and twenty-two, 130 and 140 mm. of mercury.

COMMENT

According to these statistics, goiter is fairly prevalent in the young male population throughout a large section of the central and western portion of the United States. The percentage is even higher in Texas and Oklahoma than in the Great Lakes region, which is contrary to the prevailing conception. Since these statistics were compiled, men have passed through the examining barracks from Idaho and Montana. A high percentage of them had goiter. We have been told that goiter is very common in the soldiers of Camp Lewis. In the examination of the Thirty-Eighth Division at Camp Shelby, composed of 22,622 men from Indiana, Kentucky and West Virginia, Musser[1] made a diagnosis of hyperthyroidism in ninety-seven cases (0.4 per cent.). Jones,[2] in an article based on the study of 407 cases in the Southeast, states that while goiter is present throughout that section, it is not so common as in the region of the Great Lakes. From this study we conclude that goiter is, no doubt, more common outside of the Great Lakes region than usually considered, and that men are more frequently affected than reports indicate.

DIAGNOSIS

The presence of tachycardia, thyroid enlargement, fine tremor of the hands, eye signs, as lagging lids, staring gaze and poor convergence with increase in systolic blood pressure, in our mind justified a diagnosis of hyperthyroidism. When in addition there is an exophthalmos, as in 57 per cent. of our cases, there is no doubt.

It is often very difficult to differentiate these beginning toxic goiters from irritable heart. This is especially true when the thyroid enlargement is very slight and eye signs are indefinite. The history is important. The men with toxic goiter have some, and perhaps all, of the symptoms of irritable heart. They usually complain much less in the former and, as in 15 per cent. of our cases, had practically no subjective symptoms. The blood pressure affords some assistance. The systolic pressure, in our experience, has not usually been increased in irritable heart, in which no organic basis could be found. On the other hand, 73 per cent. of the men with hyperthyroidism had systolic pressure of over 130 mm. of mercury, and 51 per cent. over 140 mm. In doubtful cases the history and eye signs have been the determining factor, and an increased systolic pressure was used as supporting evidence in favor of hyperthyroidism.

HYPERTHYROIDISM AND MILITARY SERVICE

These men with toxic symptoms are in the early stage of exophthalmic goiter. They rarely ever consult a physician in civil life with the symptoms these men present. Many of them, no doubt, would so adjust themselves to their environment in civil life that they would suffer no inconvenience. In this series 15 per cent. had recently changed to light work.

Physical and mental strain have long been known to be important factors in precipitating or aggravating the symptoms of toxic goiter. These factors in military training would most probably break down many of these men. Major L. M. Warfield and I have observed twenty cases in the hospital, where they were given graded exercises. Nine of these men were sent to the hospital from the examining barracks suspected of having hyperthyroidism. In every instance the subjective symptoms grew progressively worse. No doubt the first few days in an army post aggravated the already incipient symptoms. Eleven men were sent to the hospital because they were no longer able to do their work satisfactorily. All had marked symptoms of hyperthyroidism. Seven had definite exophthalmos. Four stated that they had no symptoms prior to entrance in the Army. The remaining seven date their trouble back to civil life, but contend that they had become markedly worse since they began their military training. The average service given by these men was one and a half months. These observations are too few to justify definite conclusions. They are, however, confirmatory evidence in favor of the prevailing conception that the toxic goiter is a poor military risk.

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[1] Musser, J. H., Jr.: The Tachycardia of Soldiers, Am. J. M. Sc. **155**: 883 (June) 1918.

[2] Jones, E. G.: Goiter in the Southeast, J. A. M. A. **71**: 712 (Aug. 31) 1918.

ACUTE LYMPHATIC LEUKEMIA COMPLICATING PULMONARY TUBERCULOSIS *

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The etiology of leukemia, although studied in detail by numerous investigators, still remains obscure.

Malaria, pregnancy, syphilis, splenic trauma and tuberculosis are regarded by many as the exciting agent. Whether these conditions are causative or merely coincident cannot be definitely ascertained at present, owing to the comparatively rare incidence of the disease, and the relatively small number of cases thus far reported.

Still others believe that the condition is due to a specific micro-organism. Ward,[1] who has made an intensive study to determine whether or not infection is the cause, came to a negative conclusion, basing his opinion on these observations:

1. There is a congenital form of leukemia found in children of normal parents.
2. Leukemic parents have never been known to transmit the disease to their offspring.
3. Very few instances of supposed transmission of the disease have occurred.
4. Leukemia has a marked preference for a particular age and sex, and in this differs from infectious diseases.

Cameron recites a case that tends to show that leukemia is due to infection or to the existence of a strong hereditary tendency. The grandmother and mother of the patient, as well as a brother, suffered from symptoms strongly suggestive of leukemia. One of the patient's children died of the disease previous to its development in the mother, and the death of a second child occurred later from the same cause.

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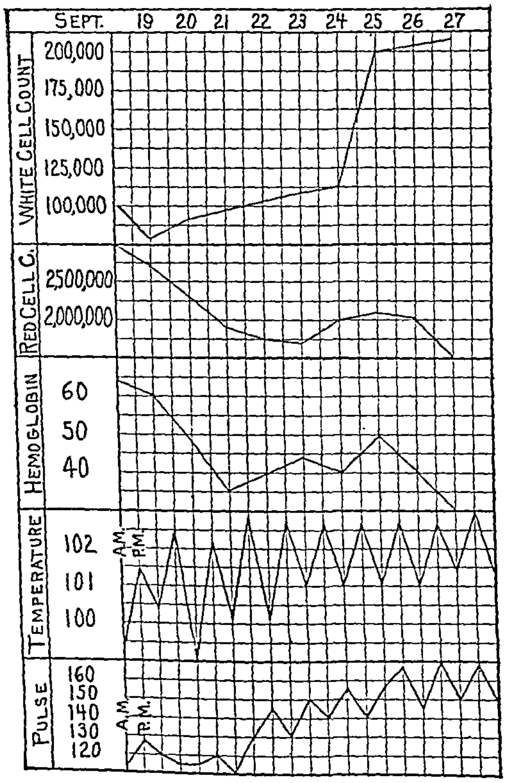
* From the New York State Hospital for Incipient Pulmonary Tuberculosis, *Ray Brook, N. Y.*

[1] Ward, G.: Brit. J. Child. Dis. **14**: 10 (Jan.-March) 1917.

The case in question would suggest more than mere coincidence. Other writers have likewise cited two or more cases of the disease in one household.

Some observers believe that leukemia, as is assumed by some clinicians for carcinoma, is a disease of metabolism. It is pointed out that the onset and termination in certain cases exhibit a marked similarity. The belief that tuberculosis may be an etiologic factor also has its adherents. Dieterle[2] examined a case of primary tuberculosis of the cervical lymph nodes with a wide dissemination of miliary tuberculosis. The case was one of chronic lymphatic myelogenous leukemia with secondary tuberculosis. Tubercle bacilli were found in the venous blood of the right heart on slides stained with carbolfuchsin.



Blood counts, temperature and pulse.

Frankel and Much[3] studied in detail several cases of Hodgkin's disease and lymphatic leukemia. They examined the lymphatic glands in seven cases of lymphatic leukemia by the antiformin method and in each case isolated a thick granular rod, gram-positive but Ziehl negative, morphologically similar to the tubercle bacillus. This bacillus they were unable to cultivate. The results in the cases of Hodgkin's disease were precisely parallel, the bacillus being similar in appearance and staining properties to the one found in the cases of leukemia.

The question naturally arises, after one has noted the results of their investigation as well as that of Dieterle, regarding the possibility of some direct relationship between lymphatic leukemia and tuberculosis. Many students believe that there is some indefinable connection between the two conditions, and for this reason the report of a case of acute lymphatic leukemia complicating chronic tuberculosis may be of interest.

REPORT OF CASE

History.—A woman, aged 30, of Irish-English descent, single, telephone operator, who had had pertussis and measles in early childhood, and pneumonia at 9 years of age with uneventful recovery, complained, in 1914, of feeling weak and tired. Cough and expectoration developed. She did not regain strength. Early in 1916 the condition was recognized as pulmonary tuberculosis, and in May, 1916, the patient was admitted to the New York State Hospital at Ray Brook.

Physical Examination.—The patient was suffering from moderately advanced tuberculosis, and her physical condition was decidedly below par. The left side of the chest from apex to fourth rib, both anteriorly and posteriorly, was very dull to percussion, and fine, dry râles were audible on auscultation. The right apex was slightly involved. Physical examination otherwise was negative. The roentgenogram presented a dense triangular shadow in the left upper three interspaces. The right lung field was clear throughout. The mediastinal contents were displaced slightly to the left. The right leaf of the diaphragm was uniform in outline; the left showed a distinct peak.

Tubercle bacilli were demonstrated in the sputum on several occasions. The blood count was 8,900; hemoglobin, 85 per cent. The white and red cells showed nothing abnormal. Urine examination was negative. The temperature was from 99 to 99.3; the pulse, from 100 to 110; the bowels were constipated; the appetite was fair. The patient seemed quite listless and was of an apprehensive disposition.

Clinical Course.—The pulmonary condition became somewhat better, and in twelve months it was fairly well arrested, the râles in the chest disappearing. The dulness, however, remained, and the general condition of the patient exhibited no marked improvement. There was no appreciable gain in weight. The temperature ranged around 99, and the sputum became negative. Generally she felt fairly well, except for occasional intestinal distress and constipation. No marked change was discernible until early in September, 1918, when the patient began to complain of weakness, and had a temperature of from 99.4 to 99.8 in the evening. September 17, the patient became definitely ill. The temperature rose to 101.2, and was accompanied by nausea and a burning sensation in the stomach. The exacerbation of symptoms was at first attributed to renewed activity of the pulmonary process, although the physical examination did not so indicate. At this time a slight enlargement of the cervical glands was noted. The patient looked anemic, and the conjunctivae were pale. The liver was slightly enlarged; the spleen was not palpable. A blood count was taken September 18, and the result was the discovery of a lymphatic leukemia. The blood count revealed: leukocytes, 103,200; hemoglobin, 65 per cent.; small lymphocytes, 65.5 per cent.; large lymphocytes, 18.5 per cent.; polymorphonuclear neutrophils, 5.5 per cent.; eosinophils, 1.5 per cent.; transition cells, 7.5 per cent.; basophils, 1; normablasts, 0.

From day to day the blood picture changed considerably, as is indicated on the accompanying chart. Some days an improvement was noted only to be followed by a fall in hemoglobin and increase in leukocytes. The lymphatic count varied between 90 and 98 per cent. on the various examinations.

On the night of September 20 the patient had a temperature of 102.2 and vomited a great deal. The following day the axillary, inguinal and cervical glands were much enlarged, and the tonsils became swollen and inflamed, making deglutition difficult.

On the 22d, the patient felt very badly. She had hemoptysis of a few cubic centimeters, and purpuric spots appeared on the abdomen and back. The urine contained a few granular casts and 2 per cent albumin. From this time the clinical manifestations grew progressively worse. Each day she had slight hemorrhages from the mouth; the gums were very tender and bled easily. Herpes appeared on the lips, and the breath became very foul. The urine was thick, and contained large amounts of albumin, and red and white blood cells. The pulse was very fast and bounding, and auscultation elicited a systolic murmur over the mitral area. Headache was almost constantly present, and the tongue was foully coated. During this entire period the spleen palpable, and the liver was enlarged only 1 inch below the costal margin. No ascites was evident. The lymphatic glands, however, became progressively larger from day to day.

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[2] Dieterle, R. R.: J. Infect. Dis. 19: 263 (August) 1916; abstr. J. A. M. A. 67: 638 (Aug. 19) 1916.

[3] Frankel and Much: München. med. Wchnschr. 57: 685, 1910.

September 28, the family of the patient insisted on removing her to her home in a distant city, and further progress of the case was not under my supervision. However, the patient survived only fifteen days after the diagnosis was established.

COMMENT

Although no postmortem was held, the clinical picture and repeated examination of the blood are sufficient to establish a diagnosis of acute lymphatic leukemia, malignant in type. One may assume from the clinical notes submitted that in this case pulmonary tuberculosis was the initial disease, and that after an illness of two years, the patient developed acute lymphatic leukemia, of which she died. Possibly histologic examination of the affected glands might have shown some association between the leukemia and the coexistent tuberculosis.

PURGING BEFORE AND AFTER ABDOMINAL SECTION

HENRY T. BYFORD, M.D., F.R.C.S.
CHICAGO

A few years ago the drift of surgery, as a result of the introduction of anesthesia and the adoption of antisepsis, was toward the development of technic and the perfection of methods. Coincidentally much attention was given to the elaboration of the preparatory and after-treatment. Many things were recommended and more or less extensively employed for the purpose of fortifying the patient for the operative ordeal, and of neutralizing the untoward effects. As surgical technic improved and methods were perfected, one after another, these measures were found to be no longer necessary and were eliminated, and the preparatory and after-treatment assumed a simplified, more or less routine character.

One of the routine measures that has survived is the preoperative and postoperative purgation. Yet there are those who are now seeking to give this attempted imitation of a simple process of nature its *coup de grâce*. They not only declare it unnecessary, but also attempt to prove by arguments and experimentation that it is harmful in its effects. I will restrict my remarks to purgation in cases of intra-abdominal surgery in which the opening of the peritoneal cavity makes the condition of the intestinal canal a matter of considerable importance.

PREPARATORY PURGING

Before we can discuss preparatory purging intelligently, we must define what we wish to do by it, and how we do it. I suppose that the main purpose is to cleanse the bowels of any gas or feces that might interfere with the attainment of the best results from our operative work. Another is to have a comparatively empty colon in those cases in which it may be desirable to keep our patient constipated for two or three days after the operation.

The main argument against such purgation is that it seldom cleanses the bowels and more often increases than diminishes the abdominal distention; and this really seems to be the case in many instances. An examination of the way in which it is ordinarily carried out in practice will show why: When a plumber cleans out a sewer, he does not put dirt into it at the same time because he knows better; but when the average surgeon prescribes a laxative to clear out the bowels, he allows food to be taken a short time before the laxative is given and permits or orders more to be taken before the laxative has quit working. The result is that instead of cleansing the bowels, the laxative merely moves everything onward. It expels old fecal matter and gas together with the digestive secretions and ferments while the stomach is delivering food into the duodenum. This food not only does not find the normal secretions for its digestion, but it is rushed onward too fast for digestion and arrives in the colon as food for bacteria rather than for the patient. Not only is this true, but more food is usually given before the intestine has recovered from its fatigue sufficiently to take care of it. As a consequence it becomes distended, whether it has been so previously or not. If such is the ordinary preparatory purging—and I think it is—then much argument and experimentation is not required to condemn it.

This may be said to conclude the argument from the objector's standpoint, but it does not touch on the merits of the question. The question is whether a laxative can be given to accomplish what we give it for, and if so how. I think it can, if what I shall call the four R's are observed, namely, the right laxative, in the right dose, at the right time, and under the right conditions.

The Right Conditions.—To begin with the last R mentioned, the surgeon or some one else should prescribe the conditions under which the desired results of the laxative can be secured. The material for the renewed formation of gas should be kept out of the alimentary canal; the last food that the patient takes before taking the laxative should have time to leave the duodenum and to be absorbed before the rapid peristalsis connected with purgation begins. After the purgation has ceased, none but easily digested food in properly regulated quantities should be given, such, for instance, as the quickly absorbable forms of sugar, meat extracts or nutritive wines or, if the patient is very weak, predigested food, until the upper intestine has sufficiently recovered from its fatigue to assume normal function, which may be before or not until after the operation, according to the requirements of the patient. The fact that such severe restriction of the diet is required, however, constitutes an indication for limiting our attempt at securing a collapsed or partially collapsed intestine to those cases in which the intestine is not already sufficiently collapsed and in which the conditions of the operation require it.

The Right Time.—The timing of the laxative must be such that any residual gas that may be left will have a chance to be absorbed. Thus, for a forenoon operation, the laxative will have to be given early on the day before or in some cases the night before that. For an afternoon operation, it will ordinarily be required the night before the operation, and sometimes earlier. If the object in view is to get the patient in a good condition for the operation, it may have to be given three or four days before; and the alimentary canal, for two or three days may have to be allowed to functionate normally and under low pressure, if I may be allowed to use the term.

The Right Laxative and the Right Dose.—On account of the variations in the character of the different operations and the differences in the condition of patients, the kind and amount of purgation should be adapted to the requirements of the concrete case. One abdominal section may require a low incision, another a high one; one a large incision, another a short one; one patient may require work at the bottom of the pelvis, another at the surface; one intestinal work, another none; one operation may be a long one, another a short one; one may require general anesthesia, another local only; that is, in one patient no attention to the bowels may be required even though they are somewhat distended, while in another a carefully conducted preliminary purgation may be essential to reduce the distention and enable the operator to do good work.

Again, a patient may come to us half starved and with collapsed intestine, and may not even need an enema, or perhaps only a mild stimulating one to relieve the sigmoid flexure, or an oxgall enema to soften and remove a few hard fecal masses from a dry and sluggish rectum. In such a case only harm could come from ordinary routine purgation and dieting. On the other hand, a patient may be a strong, hearty eater, with a full abdomen and powerful abdominal muscles who requires active purgation to remove foul gases and diminish intra-abdominal pressure, and who can stand any amount of dieting. One patient may be constipated habitually and on that account require a powerful laxative, another may always have daily movements and require only an enema; one may have accumulations of fat both inside and outside of the abdominal cavity, while another may be emaciated; one may have idiosyncrasies with regard to laxatives, enemas or anesthetics, another may feel as well after purgation or anesthesia as if he had not taken them, while another may have an organic disease that diminishes his resistance or otherwise makes him a bad risk.

Now, who would advocate sending patients for such a variety of abdominal operations and exhibiting such dissimilar conditions to a hospital, to be prepared in a routine way with routine purgation, perhaps without seeing them again until he finds them on the operating table? And yet such is the case in some of our clinics in large, crowded hospitals, where routine is essential to keep things going, and where individualization may be possible only in private cases.

The laxative should be selected, the dose regulated, the time for its administration chosen, and the conditions under which it acts carefully adjusted to suit the requirements of the concrete case instead of being used in a routine way. Then there will be no occasion for the rejection of purgation in the preparation of patients for abdominal sections.

It should be remembered also that the colon bacillus is not very virulent, that it kills people only under exceptionally favorable circumstances, and that patients in normal condition and without abdominal distention do not require a stirring up with laxatives before an abdominal operation. A restriction of the diet will sometimes promote abdominal flaccidity better without a laxative than with it.

POSTOPERATIVE PURGING

With regard to the question of purgation after abdominal section, the cases may be divided into four classes: (1) those in which the character of the operation requires early purgation; (2) those in which it requires delay in the administration of purgatives; (3) those in which the indications are relative, and (4) those in which the question of purgation is not dependent on the fact that the abdominal cavity has been opened.

1. Those cases require early purgation in which a large incision in the middle or lower zone of the abdomen is made in connection with considerable displacement of intestinal coils, and sufficient intraperitoneal traumatism to give rise to subsequent adhesions. Under such conditions, adhesions of displaced or kinked intestinal loops are liable to form and interfere with through and through peristaltic action and result in obstruction and death. Early purgation helps to maintain a permeable canal until the adhesions have formed and the danger of obstruction has passed.

2. Cases in which there has been resection or extensive repair of the intestine usually require dieting and delay in purgation until a certain amount of protective exudate has had time to seal up the intestinal suture lines.

3. Cases in which sutured or denuded areas have been left are not so liable to the formation of extensive or permanent adhesions if peristaltic action is kept fairly active from the time of the operation. Early purgation may not be necessary, yet it may be desirable. An accumulation of gas may require it in one case, while in another dieting or washing out of the stomach or a postural treatment may suffice.

4. Cases in which the incision has been small, with but little exposure or manipulation of the intestine and in which all ligatures or denuded surfaces have been covered, will require purgation or abstention from purgation for conditions that may happen to present themselves, without reference to the fact that the abdomen has been opened. When such patients have not been dieted either before or after the operation, they may have early spontaneous bowel movements without laxatives or may merely require enemas to assist nature; while others who are accustomed to depend on laxatives may require early purgation for relief. Patients who have been dieted before the operation and in whom the anesthetic has disturbed the stomach will have but little substance in the alimentary canal and may do better without a bowel movement for two or three days.

CONCLUSION

It has been my intention in this communication not to go into an exhaustive discussion of the subject of purgation before and after operation, but merely to call attention to the harm that may be done by employing it in a routine way and to the desirability of individualizing the indications. A routine method may be a good thing for a surgeon or a hospital staff to have on record, not as a method to be followed out, but as one to be modified. It may happen to be just right for some cases, and in others it may require modification only in a few particulars and may thus be of time-saving assistance to the one who formulates the directions for each patient, as well as to the one who has to interpret them and carry them out.

112 South Michigan Avenue.

Malarial Pseudotetanus.—A. Castellani (*Arch. méd. Belg.*, August, 1918) has seen a case in Macedonia and three in tropical countries of malaria simulating tetanus. The patients had a normal temperature, with trismus, opisthotonos and undoubted tetanic spasms. In all the cases the examination of the blood and the happy effects of treatment with quinin proved that they were cases of malaria.

A FILTRABLE POISON PRODUCED BY B. INFLUENZAE (PFEIFFER) *

JULIA T. PARKER
NEW YORK

The clinical course of the present epidemic of influenza has emphasized what appears to be two important points worthy of investigation:

1. The rapidity of onset, suggestive of an overwhelming intoxication, which may be due to a soluble toxin.
2. A marked leukopenia present in most of the cases.

The question of the leukopenia has not, in our opinion, received the attention it deserves, and a succeeding report will deal with that question. The present report deals with the filtrable poison. Although these experiments do not by any means prove that the influenza epidemic is caused by the Pfeiffer bacillus, yet they would seem to indicate this possibility.

Five strains of the influenza bacillus were used in this work. For two of these we are indebted to Dr. Anna Williams; the other three were isolated by us from influenzal pneumonia sputums.

The poison was formed by the growth of *B. influenzae* on several different mediums; the medium, however, with which the most constant results were obtained, was made as follows:

> Veal infusion broth was prepared in the usual way. The required amounts of broth were measured into Ehrlenmeyer flasks and sterilized in the autoclave. The final hydrogen-ion concentration should have a p_H of from 8 to 8.2. To these flasks enough sterile defibrinated rabbit's blood was added to make it 10 per cent. of the whole. The flasks were then heated over a water bath at 75 C. until the blood coagulated and settled on standing. This requires from three to five minutes after this temperature (75 degrees) has been reached.
>
> The flasks were inoculated with one or two slants of *B. influenzae* to every 50 c.c. of medium.

The poison is produced with remarkable speed. We have obtained very toxic filtrates even after only from six to eight hours' incubation. At this time the organisms are growing very rapidly. Most of our work has been done, however, with eighteen or twenty hours' growth. There is no relation between the amount of growth and poison formation.

After incubation the cultures were centrifugalized, and the supernatant fluid was filtered through a Berkefeld candle. The sterile filtrate was then inoculated intravenously into rabbits.

The poison deteriorates very quickly, even when kept in the ice box. For this reason the toxicity of the poison must be tested, and the experiments made on the same day. If 2 c.c. of a poison killed a medium sized rabbit in from one to three hours, we considered it a good poison. Sometimes rabbits died when injected with 1 c.c. of a poison, but this was not the usual result.

When a rabbit is given a lethal dose of the poison, there is an incubation period of about thirty minutes before any symptoms appear. This is followed by increasing weakness, often accompanied by diarrhea. Death usually occurs within three hours, with or without convulsions.

Immunologic tests were carried out as follows: Rabbits were immunized to multiple lethal doses of the poison. The serum of rabbits that have withstood at least four lethal doses of the poison will protect normal animals against lethal inoculation of the poison. An immunity against a poison produced from any one strain will protect against a poison from any other strain. This protection is shown in two different ways:

A. By mixing the lethal dose of the poison in vitro with the serum before inoculation.

B. By giving the serum fifteen minutes before or fifteen minutes after the injection of the poison.

TABLE 1.—EXPERIMENTS IN VITRO ON RABBITS INJECTED WITH MIXTURES OF INFLUENZA POISON AND IMMUNE SERUM

Rabbit	Weight Gm.	Mixture Injected	Remarks
1	1,450	5 c.c. Poison 9 + 2 c.c. Serum 308......	Lived
2	1,530	5 c.c. Poison 9 + 1 c.c. Serum 308......	Lived
3	1,500	5 c.c. Poison 9 + 2 c.c. normal serum..	Dead 1 hr. 10 min.
4	1,530	5 c.c. Poison 9 + 1 c.c. normal serum..	Dead 1 hr. 40 min.
5	1,500	5 c.c. Poison 9..........................	Dead 1 hr. 15 min.
6	1,550	5 c.c. Poison 9..........................	Dead 1 hr. 55 min.

Three average protocols to illustrate these points are given herewith. The mixtures were incubated at 37 C. for half an hour before being injected. Serum 308 was taken from a rabbit which had had eight injections of poison. The rabbit was bled on the eighth day after the last injection. Although 2 c.c. of this poison was the lethal dose in the morning, we used, on account of deterioration, 5 c.c. of it in the afternoon of the same day. This applies also to the protocols given in Tables 2 and 3.

TABLE 2.—EXPERIMENTS ON RABBITS INJECTED WITH INFLUENZA POISON AND INOCULATED WITH IMMUNE SERUM

Rabbit	Weight Gm.	Poison	Serum	Remarks
7	1,360	5 c.c. E	5 c.c. Serum 307............	Died 1 hr. 20 min.
8	1,380	5 c.c. E	10 c.c. Serum 307............	Lived
9	1,400	5 c.c. E	5 c.c. Serum 308............	Lived
10	1,410	5 c.c. E	10 c.c. Serum 308............	Lived
11	1,400	5 c.c. E	5 c.c. normal serum.......	Died 1 hr. 20 min.
12	1,410	5 c.c. E	10 c.c. normal serum.......	Died 23 hr.
13	1,400	5 c.c. E....................................		Died 1 hr. 55 min.
14	1,440	5 c.c. E....................................		Died 2 hr. 7 min.

Rabbits 7, 9 and 11 were inoculated with the specified serum fifteen minutes before the inoculation of the poison. Rabbits 8, 10 and 12 were inoculated with the serum fifteen minutes after the poison. Serum 307 was taken from a rabbit which had had ten injections of poison. The rabbit had been bled on the tenth day after this last injection. Serum 308 was taken from a rabbit which had had ten injections of poison. It had been bled on the fifth day after this last injection.

TABLE 3.—EXPERIMENTS ON RABBITS INJECTED WITH INFLUENZA POISON AND INOCULATED WITH IMMUNE SERUM

Rabbit	Weight Gm.	Poison	Serum	Remarks
15	1,475	5 c.c. 9	10 c.c. Serum 410............	Lived
16	1,450	5 c.c. 9	10 c.c. Serum 410............	Died 3 hr. 45 min.
17	1,415	5 c.c. 9	10 c.c. normal serum.......	Died 1 hr. 35 min.
18	1,475	5 c.c. 9....................................		Died 1 hr. 25 min.
19	1,555	5 c.c. 9....................................		Died 2 hr.

In each case the serum was inoculated fifteen minutes after the poison. Serum 410 was taken from a rabbit which had had eight injections of poison. It had been bled on the seventh day after this last injection.

The following figures, the result of all our experiments, show the value of this serum:

There were seventy animals inoculated with the poison in this series of experiments. Half, that is, thirty-five, were protected with immune serum either in vitro or in vivo. Of these, twenty-seven (77 per cent.) lived. The other thirty-five were controls, and of these only three (7.5 per cent.) lived.

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* From the Department of Bacteriology, College of Physicians and Surgeons, Columbia University.

SUMMARY

It has been found that the influenza bacillus produces a filtrable poison which is lethal to rabbits. This poison is produced with great rapidity. It also deteriorates very quickly. An immunity can be produced against it. The serum of immune animals appears to be antitoxic both in vitro and in vivo.

RECURRENT RENAL CRISES

GEORGE S. WHITESIDE, M.D.
Lieutenant, U. S. N. R. F.
PORTLAND, ORE.

I desire to call the attention of urologists and particularly of naval surgeons to a syndrome that came under my observation while stationed at the Naval Hospital at Norfolk, Va., in the winter of 1918.

During the winter of 1917-1918, many United States ships were engaged in convoying troop transports by a method that required the convoying ship to be at sea continuously for about three weeks at a time. Many of these ships were second or third class cruisers of about 3,000 to 5,000 tons displacement. It may be remembered that weather conditions were unusually severe over the North Atlantic during that winter. Gales of great violence were frequent, and much of the time the cold was intense. Such ships often encountered weather that made conditions of life on board very trying, with no possibility of making a harbor for protection from the rough seas and extreme cold. Such living conditions affected all members of the crew.

Often, for days together, it was impossible to cook and serve regular hot meals. Such meals as were served were necessarily of a quality that would convey the maximum of nourishment with the minimum of effort and therefore such as left little waste to be eliminated by the intestine. On account of the cold weather, the natural desire to drink water was in abeyance and many did not think of drinking it when they had no craving for it, which resulted in limitation of fluids. The watches on deck, or below, were performed under most trying conditions and were often prolonged beyond the limits set for fair weather navigation. Sleep was much interfered with and was frequently almost impossible. Attention to personal hygiene was out of the question for days at a time. Even attention to regular movements of the bowels or normal frequency of urination was often neglected. These facts are recited because I believe they explain the sort of syndrome of which I saw many instances.

A patient would be sent to the hospital from some ship on such duty, because of recurrent renal colic, sometimes unilateral but more often bilateral. There were recurrent crises of pain simulating such as might be caused by renal stone. Often, constant, dull pain existed between the more acute attacks. The urine was scanty and of high specific gravity. In most cases it contained neither pus nor blood, but a few patients had recurrent renal hemorrhage. Often calcic oxalate or uric acid crystals of small size were numerous in the centrifugalized sediment. Ureteral catheterization in all cases showed the condition to be renal in that any abnormality observed in the evacuated urine before catheterization would be duplicated in that obtained through the renal catheter.

The cystoscopic inspection of the bladder was normal.

In all cases the renal pelves seemed contracted, since from 5 to 10 c.c. of fluid injected was the extreme limit.

The phenolsulphonephthalein test showed almost normal functional ability both as to time and quantity, except in a few cases in which the excretion was slightly delayed. This test was in all cases nearly equal on the two sides.

Pyelogram roentgen-ray plates, taken in every case with 10 per cent. thorium solution, showed no abnormality, except in one case of unilateral colic in which the renal pelvis on the painful side seemed to lie largely below its outlet but was not dilated.

In several cases the injection of 5 or 6 c.c. of thorium solution brought on a renal colic similar to that for which the patient entered the hospital. This was a very striking circumstance.

From consideration of conditions described and facts observed, I believe the colic was induced by decreased renal function over a considerable period of time. Perhaps the condition may have been one of acute renal spasm with or without acute hyperemia, but without gross anatomic or pathologic change. It is interesting that such a condition can be the cause of renal colic.

Treatment of these cases consisted of rest in bed, light diet, increased ingestion of liquids, diuresis, and mild daily purgation. All patients made a gradual and uninterrupted recovery.

One patient had a return of symptoms on going to sea again, even though he was on a larger ship and encountered calm weather.

Owing to the fact that all patients recovered, no pathologic examination of the kidneys was ever made, and therefore the pathology of this condition can only be surmised.

IDIOPATHIC ENURESIS IN ADULTS

HEIMAN CARO, M.D. (Chelsea, Mass.)
Captain, M. C., U. S. Army
FORT SNELLING, MINN.

Nocturnal enuresis in childhood has been thoroughly reviewed in the literature. Concerning the condition in adult life, when no organic neurologic lesion is demonstrable, the literature is meager. Little can be found in most textbooks on neurology when the trouble occurs after the first decade of life; while in the clinical records of large institutions such case histories are without doubt a rarity. Jelliffe and White[1] state that after the third year of life it is an indication of a neurotic disposition, while Osler declares that nocturnal enuresis usually clears up by the end of the first decade.

When, therefore, a group of adult men, in military life, present themselves with this symptom, the conclusion that there is a deliberate attempt to malinger is uppermost in the mind of the observer. But these patients wet their beds or cots consistently. The night attendants in the ward note the dribbling of urine, while the patient sleeps soundly on until morning. In spite of threats, punishments and ridicule, the condition continues unabated, while all such patients show certain constant characteristics. Hence, it becomes inevitable that the conclusion must be forced on the observer that he is dealing with a distinct syndrome, a manifestation of a neuropathic condition.

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[1] Jelliffe, S. E., and White, W. A.: Diseases of the Nervous System, Philadelphia, Lea & Febiger, 1917.

Military surgeons have described cases of nocturnal enuresis cured by threats of punishment or "special detail" work. In deliberate malingering or slothfulness, these undoubtedly have their effect. But when no simulation exists, the only result is to have the patient redouble his vigilance and to conceal his infirmity by every possible expedient. Then he is returned to duty apparently cured. But with the fatigue of the day's work, he sleeps soundly, does not resort to the various precautionary measures, and awakens in the morning only to find that once more he lies drenched in his own urine. The obnoxious odor, the discoloration of the bedding, etc., call the attention of some officer to his condition, and again he is ordered to the base hospital or to the infirmary. In such cases, the suspicion of malingering cannot be seriously considered. Of course, it is not to be questioned that with the man who reports himself to the regimental surgeon with the usual tale of long treatment at home, deliberate simulation for the purpose of evading further military service may be suspected. But it cannot be denied that he who deliberately lies in his own urine is not only slothful and "good-for-nothing," but a mental defective as well.

In presenting this series of twenty-five case histories of idiopathic enuresis held under observation at the base hospital, Camp McClellan, Ala., it may not be amiss to note at this point certain facts in regard to the care of these men. Every patient was held under observation for at least two weeks; five of the number were admitted to the ward for a second period of observation for the condition. Beyond the protection of the bedding by rubber sheeting, and the restriction of fluid after 5 o'clock in the afternoon, no systematic therapeutic routine was attempted. Bladder irrigations, touching of the posterior urethra with silver nitrate, hexamethylenamin and tincture of belladonna were tried in various cases, but without any amelioration of the condition. In one, a moderate cystitis was present, but the clearing up of this complication was not attended by any change in the severity of the enuresis.

CLINICAL DATA

Age.—These men were from 17 to 38 years of age, the majority being under 25.

Age of Onset.—Twenty-one gave a history of the condition having existed, with short periods of remissions, since early childhood. Of the remaining four, the first patient gave a history of imperative urination since early childhood with nocturnal enuresis for three months prior to admission; the second, following an injury to his back, at the age of 12, but without any evidence of cord irritation at the time of examination, and the third, following a kick in the flank occurring seven months prior to admission (this patient presented evidence of a mild condition of dyspituitarism). In the fourth patient the trouble began at the age of 27 and had existed for eleven years. This patient had a posterior urethral stricture, said by the genito-urinary surgeon not to be venereal in origin. He showed no dribbling of urine during the day. His sister is said to be enuretic.

Family History.—Thirteen patients gave a family history of a similar condition or other neuropathic traits, or of cardiorenal disease. Table 1 shows the incidence of these factors.

Past History.—A history of deep, heavy sleeping was always present, and this was noted repeatedly during the period of observation. Imperative urination during the day was a constant factor. The attempt to retain the bladder contents for even a short period caused considerable pain, and frequently would be attended by incontinence. In several, inability to urinate in the presence of others was noted. Only four of these men gave a history of gonorrheal urethritis, but the enuresis antedated the venereal infection. Periods of remission, never of more than two or three months, were frequent. It was impossible, however, to determine the cause for the return of the enuresis. In none was there obtained a history of epilepsy.

TABLE 1.—FAMILY HISTORY

Case	Father	Mother	Siblings
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9	....	....	Brother a psychopath
10	*Enuresis until 17* (brother until 20)		
11	Inebriate	Died of cardiac disease	
12	....	Migraine	Sister enuretic
13	Uremia	....	Two brothers enuretic
16	Inebriate		
20	Nephritis	....	Sister enuretic (2)
21	....	....	Brother enuretic
23	....	Cardiac disease	Three brothers enuretic
24	Inebriate	(Brother insane)	Five mental defectives
25	Inebriate	Enuresis	Sister enuretic

Physical Condition.—There were present distinct trends toward the vagotonic constitution: cold skin, cyanotic hands, marked localized perspiration, deep set eyes, acneiform eruptions, increased flow of saliva, and diminution of the faucial reflexes. Only one patient showed any trend toward the sympatheticotonic type. Facial asymmetries of fairly marked degree were noted in thirteen, while deviations from the norm in regard to the hard palate were usually present.

Neurologic examination revealed all the deep tendon reflexes to be very active. The faucial reflexes were diminished in intensity. In none was there any evidence of spina bifida occulta. In only one case was multiple sclerosis suspected, there being slight nystagmoid movements on looking to the right or left, absent abdominal reflexes, and enuresis; but otherwise both history and clinical findings were absolutely negative.

Urologic examination gave no further information. Urinalysis was negative, except in the case of cystitis mentioned. Cystoscopy in eight cases gave normal findings, except that there was constantly present an increased resistance to the catheter at the compressor urethrae muscle. It may be of interest to note here one patient, not included in this series, in whom a marked trabeculation of the bladder with a content, under pressure, of only 60 c.c. was found.

Mental Condition.—Psychometric tests were completed in all cases; the Yerkes-Bridges point scale,[2] with a total of 100 credits, was used. The results are given in Table 2.

The usual defects were found to be in memory span, logical reasoning, judgment and in acuity of insight.

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[2] Yerkes, R. M.; Bridges, J. W., and Hardwick, Rose S.: A Point Scale for Measuring Mental Ability, Baltimore, Warwick & York, 1915.

All the men had worked steadily at various occupations of a manual character when in civil life. None showed any criminal or other psychopathic trends. But the noticeable feature was their blasé manner, almost amounting to indifference, with which they discussed their ailment. Their attitude can be summed up best in their common answer, "I can't help it."

Summary of Clinical Data.—The factors here presented may be summarized under four headings: (1) a family history of neuropathic or cardiorenal disease; (2) a history of nocturnal enuresis, existing since childhood, with periods of remission, and always accompanied by imperative urination and by deep sleep; (3) a disclosure on physical examination of vagotonic trends, with negative neurologic and urologic findings, (4) all associated with certain borderline defects in mental efficiency.

COMMENT

There is a constant feature in these cases: the noticeable lack of any gross pathologic findings. The cystoscopist has always found normal bladder walls and content, but has noted the increased spasm of the compressor urethrae muscle. Neurologic lesions of the cord were not present.

Any explanation as regards etiology must be presented, then, on an empiric basis. It may be said that the lack of character formation must be considered; but we find that these men are at a period of life when such conditions should be corrected with ease. Instead, our psychotherapeutic measures have failed to be of any value.

Adler[3] believes that this condition can be grouped under the examples of inherited organ inferiority wherein the compensatory overgrowth of other parts of the organ or of other organs has failed to obscure and arrest the defects resulting. Since organ inferiority manifests itself in the most diverse parts and functions of that organ, we have an explanation of our failure to find any gross pathologic conditions. The evidence presented by the cystoscopist would suggest faulty innervation of the bladder and compressor urethrae muscle. The factor of inheritance per se is not as clear in this group of cases as might be wished for. The fact that nine patients gave a family history of enuresis or cardiorenal disease is in support of this view. In addition, the psychiatric examinations reveal certain defects present: a fertile ground for the growth or accentuation of any neurosis. Hence, when this is added to the organ inferiority noted, this condition of enuresis, less noticeable in civilian life, becomes, because of the increased monotony, stress and exhaustion of military life, markedly accentuated.

TABLE 2.—PSYCHOMETRIC TESTS

No. of Cases	Total Credits	Mental Age
4	90 plus	Adult
8	From 75 to 90	From 12 to adult
10	From 65 to 75	From 11 to 12
2	From 56 to 60	From 9 to 10
1	From 40 to 50	From 8 to 9
25		

SUMMARY

1. Nocturnal enuresis in adults is a distinct clinical entity, which does not respond to the routine treatment usually effective in younger individuals.
2. Certain constant clinical findings have been noted.
3. The etiology is obscure. The theory of inherited organ inferiority is applicable.
4. Nocturnal enuresis, idiopathic, is a form of neurosis—a psychophysical defect—wherein the factors of monotony and exhaustion exaggerate the morbid potential present.

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[3] Adler, A.: Study of Organ Inferiority and Its Psychical Compensation, 1907.

DYSTOCIA FROM LARGE BLADDER STONE IMPACTED IN THE PELVIS

C. S. NEER, M.D.
VINITA, OKLA.

From a hasty review of the literature it would appear that serious interference with childbirth by vesical calculi is rather rare. Considering the enormous size which bladder stones sometimes attain, it is surprising that they are not a more common cause of dystocia. That they are not is doubtless due to their comparative rarity in women. Winkle found bladder stone in only one of 10,000 women examined.

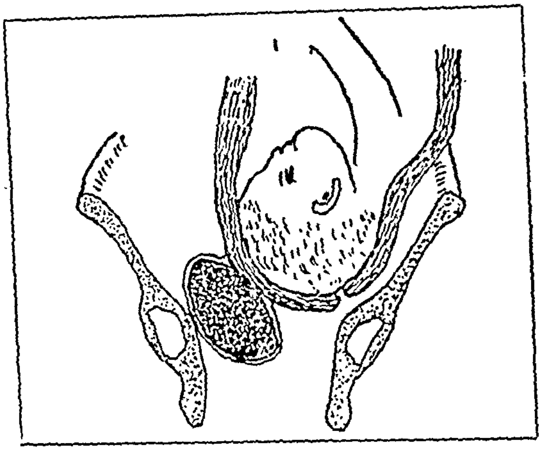

Fig. 1.—Relation of the stone to the head of the fetus.

Pinching of the bladder and anterior vaginal wall with resulting fistula, by stones too small to cause marked obstruction to the descending head, seems to be more common. Thus in Kotschurowa's case referred to by Hirst, labor lasted three days.

> At the end of that time a gangrenous tumor protruded from the vulva, which tumor proved to be the bladder and anterior vaginal wall. The midwife in attendance perforated the tumor with her finger, whereupon a calculus 85 grains in weight was discharged.

G. A. Wagner in 1907 collected forty-six instances from the literature and reported one in which a stone 2 by 4 by 6 cm. became impacted between the symphysis and the head. The nature of the obstruction was not recognized until labor had gone on four days, when it proved to be possible to reduce the stone under general anesthesia and effect delivery. Wagner urges the importance of removing bladder stones before childbirth and considers colpocystotomy with immediate suture of the bladder a very satisfactory procedure.

The diagnosis of bladder stone in the parturient appears to be somewhat difficult. It has been mistaken for pelvic exotosis, cervical fibroid or other pelvic tumor, and according to Hirst, in one case at least, cesarean section was performed on account of this mistake.

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So far as we are able to determine, this makes the eighth case reported in Maryland, two of which occurred in my experience. One of these was reported by Boggs and Guthrie.[3]

Bence-Jones proteinuria is not pathognomonic of myelomatosis, nor is myelomatosis always attended by Bence-Jones proteinuria. It has been found in osteomalacia, in bone injury due to a gunshot wound, in lymphatic leukemia, in myxedema, in carcinomatous bone metastases, and in pleural effusion. There appears to be one point in common, namely, extensive involvement of bone marrow, which suggests the possibility of some relationship in our case of a bone lesion in typhoid with a subsequent development of myelomatosis and Bence-Jones proteinuria

REPORT OF CASE

History.—A farmer, aged 55, from Queen Anne County, Md., was referred by Dr. H. G. Simpers; June 24, 1915. At the age of 35 he had pneumonia, and at 50, typhoid fever. He also gave an indefinite history of malaria; otherwise his health had been good. Since the attack of typhoid fever, five years before, he had suffered intermittently from substernal pains. These pains at first lasted several days; they gradually increased in duration to a week or two, and the last attack persisted for three weeks. He was singularly free in summer, but always worse in the spring and fall. He described the pain as burning in character and radiating from beneath the sternum to both shoulders; there was no diurnal or postural influence. However, it was aggravated by the slightest bodily movements. Associated with the pain were dyspnea and a hacking cough without expectoration. There was no dysphagia and no history of gastro-intestinal or genito-urinary disturbances. He had lost about 26 pounds in weight and was progressively growing weaker.

Physical Examination.—The patient was pale, thin and emaciated, and weighed 132 pounds. The eyes were sunken, the lids pigmented, the conjunctivae injected, the sclerae were icteroid, the pupils were even, reacting sluggishly, and arcus senilis was marked. Tophi were present in both ears. The patient suffered with a severe form of pyorrhea alveolaris, a mild chronic pharyngitis, and fissures of the tongue. The cervical lymph glands were slightly enlarged and the thyroid was normal. There were no abnormal pulsations in the neck. The hands were moist, cold and tremulous. Fibrillation was noticed in the muscles of both arms. The brachials were prominent, tortuous and sclerosed, and pulsated forcibly. Atheromatous patches were found in the radials. The pulse was regular, the rate being 84 per minute. The chest was elongated and irregularly flattened. There was a definite swelling of the sternal end of the right clavicle, due to thickening of the bone, and a similar swelling, although less prominent, at the sternal end of the left clavicle. At the junction of the second left rib and sternum there was a circumscribed swelling, fairly regular in outline, measuring about 5 cm. in diameter. These swellings presented rather smooth, even surfaces; they were firm, and not tender to pressure. There was no evidence of crepitation or fluctuation. Superficial veins were large and prominent over the upper anterior thoracic zone, and were especially pronounced over the upper sternal region.

A fluttering pulsation with marked systolic retraction was observed in the epigastrium. There was also systolic retraction in the second left intercostal space and a well defined Broadbent's sign. There was no circumscribed apex impulse, but instead a slight heaving of the chest wall over the entire precordia. Heart dulness was increased to the left. At the apex (sitting) loud to and fro blowing systolic and presystolic murmurs were heard, accompanied by a thrill. These murmurs were distinctly audible posteriorly at the angle of the scapula. In the recumbent posture they were almost inaudible. The aortic sounds were feeble, the pulmonic clear. In both apexes of the lungs breath sounds were impaired and numerous scattered râles were heard below both clavicles. Visceral examination of the abdomen was negative except for a palpable kidney on the right side. Roentgenologically, no definite bone changes were demonstrated; but plates showed enlargement of the heart and numerous large, calcified mediastinal glands, especially on the right side.

The urine was free from serum albumin, but contained a protein that strongly suggested Bence-Jones in regard to its behavior with the heat, nitric acid and acetic acid and potassium ferrocyanid tests. The amount of urine obtained was insufficient to confirm Bence-Jones protein by other tests. A summary diagnosis was made of chronic gout, arteriosclerosis, pyorrhea alveolaris, chronic endocarditis with adhesive pericarditis, and multiple myeloma.

Second Admission.—The patient was not seen again until Nov. 24, 1915, when he was admitted to the Mercy Hospital suffering with acute lobar pneumonia involving the right lung, in addition to his chronic affections. The tumor on the sternum was found to be greatly increased in size. It was soft and somewhat tender to pressure. There was no fluctuation or crepitation. By manipulation or deep breathing a pathologic fracture at the junction of the manubrium and glandiolus could easily be recognized. The enlargement of the sternal ends of the clavicles had increased in size, but their consistency was not altered. Additional nodular thickenings were noticed on the third and fourth ribs of the right side in the mammillary line.

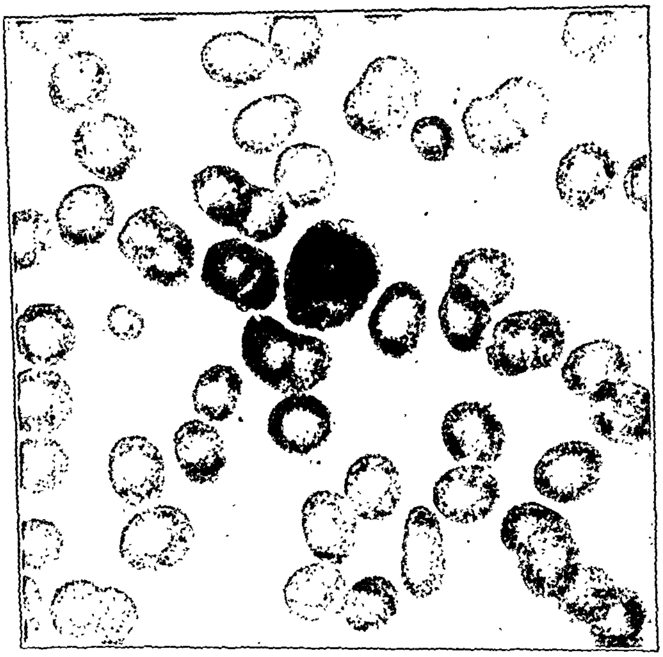

Fig. 2.—Blood smear showing plasma cell with transversely placed nucleus and nucleolus.

Urinalysis.—Dr. Judd, who made a special study of the urine, made the following report: Between 54 C. and 56 C. a white, flocculent precipitate was thrown down, which on boiling almost (but not entirely) disappeared; on cooling from 56 C. this cleared up only partially. When filtered at from 56 C. to 70 C. a small portion at 60, 65 and 70 C. was recoagulated on further heating, showing that not all the albumin was precipitated at one time. When the precipitate up to 70 C. was collected by filtration and heated to 100 C. and again filtered, the clear filtrate became distinctly cloudy on cooling. Nitric acid caused a precipitate that persisted after shaking. The rather atypical findings were attributed to the absence of chlorids dependent on pneumonia. When a strong sodium chlorid solution was added to antiacidified urine, the precipitate was obtainable. Before salting, a definite albumin, as well as albumose, was present. By lessening the degree of salting out the albumin also was precipitated at 100 C., showing the dual presence of albumin and albumose. Microscopically the urine showed numerous fine and coarsely granular casts.

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[3] Boggs and Guthrie: Am. J. M. Sc. **164**: 803, 1912.

Blood Examination.—The Wassermann test was negative. Cultures revealed a pneumococcus septicemia. The red count was 2,200,000; the white count, 8,800. Differential count revealed: small lymphocytes, 14.3 per cent.; large lymphocytes, 4.3; neutrophils, 73.3; eosinophils, 0.3; neutrophil myelocytes, 1.3; bone marrow plasma cells, 6.6; normoblasts, 1 in 300.

Before the death of the patient the cells here regarded as plasma cells were enumerated as irritation cells. It was not until after necropsy that these cells were identified as similar to those found in the bone marrow.

PATHOLOGIC STUDY, BY DR. MC CLEARY

Necropsy.—Thorax: The sternal end of the right clavicle was much enlarged, and the entire bone was easily crushed. The osseous tissue was much thinned and the marrow a yellowish gray, in areas resembling putty. The sternal end of the first rib was similarly involved. The sternum, from the second to the fourth rib, was thickened and softened and was easily incised with a knife. There was a pathologic fracture of the manubrium. The costal cartilages were nodular.

The right pleura was adherent to the pericardial sac, and both pleurae were adherent to the chest wall. The right lung was entirely consolidated, and microscopically showed lobar pneumonia in a stage of transition from red to gray hepatization. The left lung was edematous, with hypostatic congestion at the base.

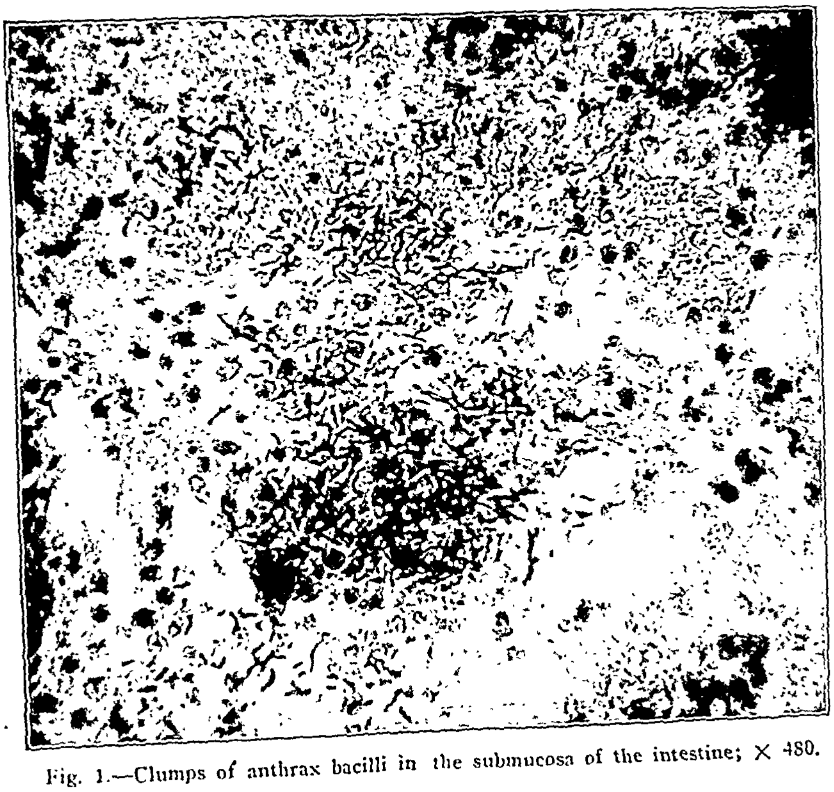

Fig. 1.—Clumps of anthrax bacilli in the submucosa of the intestine; × 480.

The heart weighed 350 gm.; the valves and coronary arteries were normal. There were no atheromatous areas in the aorta.

Abdominal Cavity: The kidneys and liver alone showed any pathologic process. The kidneys showed the changes usually described as chronic diffuse nephritis, tubular degeneration, numerous casts beginning connective tissue increase, and a slight degree of arteriosclerosis.

Liver: A few nodules the size of a pinhead were found. These apparently were minute gummas. The sinusoids of the liver contained the same cells found in the blood and bone marrow.

No head section was allowed. A careful search failed to reveal any involvement of the skeleton except those parts mentioned—ribs, sternum and clavicle—and no extraskeletal masses could be found.

Smears were made from the affected bones, and the tissue was hardened for sections. The smears were stained with Wright's stain and by indophenol blue to determine if the oxydase reaction could be obtained. After Wright's stain, the striking feature of the slide was the presence, in an overwhelming majority, of cells of an oval shape with an eccentric nucleus placed transversely to the long axis of the cell. The cells contained a distinct nucleolus. The cytoplasm was nongranular and faintly basophilic. The nuclear membrane was distinct, and the chromatin had a definite mural arrangement. The other cells present were those common to the marrow of this tissue. These oval cells with the characteristically placed nucleus and with a nucleolus were usually regarded as bone marrow plasma cells. Measurement of a large number gave 11.3 microns as the average longest diameter of the cells and 7 microns of the nucleus.

When subjected to the indophenol blue synthesis after formaldehyd fixation, these oval cells showed the presence of the oxydase granules. This fact would place this myeloma in the myeloid group, even though the morphology of the cell was that of the so-called plasma cell.

It is to be regretted that all of the blood smears obtained were stained by Wright's or by Pappenheim's stain and that we were unable to use indophenol blue on the cells of the blood that were morphologically identical with those found in the growths. The presence of the tumor cells in such a large percentage in the circulating blood is unique.

ANTHRAX ENTERITIS

THE MORBID ANATOMY AND HISTOLOGY OF TWO CASES AT CAMP DODGE, IOWA

ARTHUR S. BRUMBAUGH, M.D. (Altoona, Pa.)
Captain, M. C., U. S. Army
CAMP DODGE, DES MOINES, IOWA

REPORT OF CASES

Case 1.—*History.*—A negro private, aged 28, complained of pain in the abdomen five days before entering the hospital. His temperature was normal, and as he did not seem very ill, he was allowed to remain in quarters. Four days later the regimental surgeon found him to be quite ill, with a temperature of 102 F. and great abdominal distention and distress. A tentative diagnosis of intestinal obstruction was made. On arriving at the hospital he was assisted from the ambulance to the receiving ward, seated himself on a chair, and ten minutes later expired. A lesion on his face, later found to be a malignant pustule, had evidently given little discomfort, as the attention of the attending surgeon was not called to it or its character suspected.

Necropsy.—This was held four hours after death. The subject was large and well built. In front of the right ear on the bearded portion of the face there was a dark reddish circular, elevated area 3 cm. in diameter, having a depressed center covered with a firmly attached, brownish scab. The lesion was but slightly indurated, moved freely with the skin over the subjacent tissue, and contrasted but slightly with the black, normal skin. The abdomen was distended.

In the peritoneal cavity were found 4.5 liters (4¾ quarts) of thin, serous, straw colored, slightly cloudy fluid. The peritoneum was hyperemic, the vessels being congested and visible as a network under the serosa. The small intestine was found to be mottled with discrete, purplish red, thickened areas varying in size from 1 to 6 cm. in longest diameter, and oval, having the long axis parallel with the course of the intestine. Over some of these patches the peritoneum was roughened and mottled with grayish exudate. The mesenteric lymph nodes were enlarged and purplish.

When the stomach was opened the rugae were found to be quite prominent. The gastric mucosa was covered with gray, blood-streaked mucus. In the duodenum 3 cm. from the pylorus was found an oval, elevated ulcer covered with black coagulum, the margin of which was elevated, and the center depressed and grayish.

In the intestine, Peyer's patches and the solitary follicles were found to be enlarged, dark red and edematous, with elevated, irregular margins and a slightly necrotic, bile stained surface. The lesions were irregularly oval and of variable size up to 8 cm. in long diameter, appearing somewhat larger on the mucous than on the serous surface. The inflammatory process extended to the surrounding tissue, which was edematous and infiltrated with blood, and the areas involved were therefore much larger than the anatomic boundaries of the lymphatic tissue. The lesions were found throughout the length of the small intestine. In the jejunum the valvulae conniventes in the vicinity of the lesions were edematous and projected as prominent, rounded, translucent, grayish ridges. Some of them were reddish and had some resemblance to small cherries. Occasional Peyer's patches were surrounded with such formations.

The bronchopulmonary lymph node measured 5 by 3.5 cm. It was partially calcified and contained large pockets of friable caseous material. The tracheal mucosa was reddened and bathed with bloody mucus. A few quiescent tubercles were found in the apex of the left lung and in the lower lobe of the right lung. The heart appeared unchanged. The spleen weighed 179 gm. and was soft and slate colored, and on section the pulp scraped off easily. The malpighian corpuscles appeared as large gray bodies on a dark red background. A small tubercle was found just beneath the capsule. The kidneys showed the appearance of acute nephritis, being very dark red and mottled with minute hemorrhages.

Anatomic Diagnosis.—This was:

1. Anthrax pustule on face.
2. Tuberculous bronchopulmonary lymphadenitis.
3. Solitary tubercles in upper left and lower right lobes of the lungs.
4. Acute nephritis.
5. Acute splenitis.
6. Anthrax enteritis.
7. Acute mesenteric lymphadenitis.
8. Seropurulent peritonitis.

Bacteriologic Findings.—Anthrax bacilli were found in a smear from the face lesion, in the peritoneal exudate, in bile from the gallbladder and in the heart's blood.

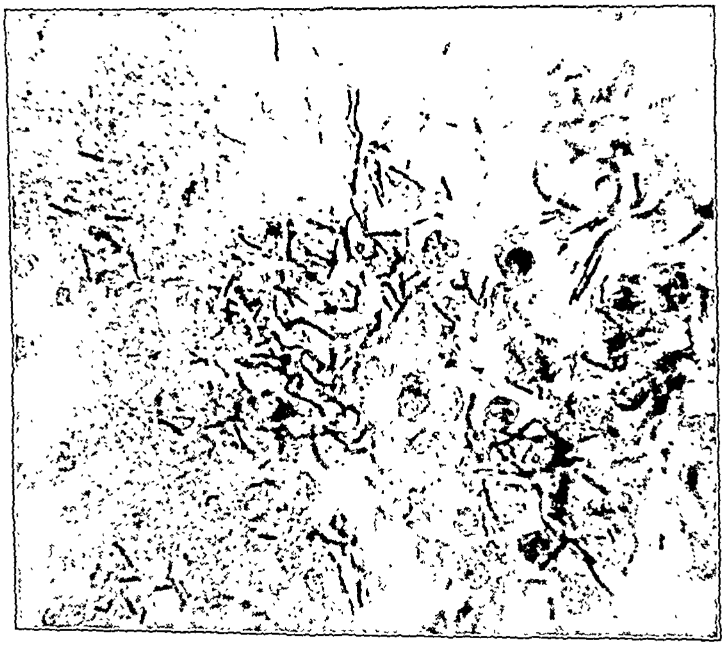

Fig. 2.—Morphology of the anthrax bacillus in the intestinal wall; × 1,000.

Histologic Findings.—Section of Intestinal Lesion: There was an extensive leukocytic infiltration of the entire thickness of the intestinal wall, but the lymphoid tissue was especially involved. Certain areas were very edematous, the cells standing widely apart. Hemorrhagic extravasation was abundant throughout the lesion, but was most marked in a zone just beneath the serous coat and the adjacent portion of the muscular layer. Anthrax bacilli appeared as large gram-positive rods and filaments occurring in enormous numbers in the submucosa and in smaller numbers throughout the section. The large masses of bacilli could be readily seen with the low magnification (× 100).

Section of Mesenteric Lymph Node: Edema and hemorrhage were present, and anthrax bacilli were found scattered through the tissue, but appear to have a special affinity for the germ centers, many of these oval areas being thickly packed with the rods.

Section from Kidney: The cortical tubular epithelium was cloudy and granular. Numerous interstitial hemorrhages were found between the tubules. The glomeruli also were hemorrhagic.

Case 2.—*History.*—A white private, aged 29, noticed a pimple at the angle of his jaw which he picked with his finger and two days later cut while shaving, after which it swelled rapidly. On his entering the hospital next day there was found a lesion 3 cm. in diameter in the center of which was a small ulcer discharging bloody pus, which was found to contain anthrax bacilli. Local improvement was obtained by the use of local antisepsis and the intravenous administration of horse serum, but on the third day after admission he developed epistaxis, nausea, vomiting and abdominal pain, and died on the following day.

Necropsy.—This was held four hours after death. The subject was well nourished. On the right side of the neck below the angle of the jaw was found an indurated area 2 cm. in diameter covered with a dark greenish scab. Behind the right ear was a large edematous protuberance.

The peritoneal cavity contained 600 c.c. of opalescent seropurulent fluid. The serosa of the cecum, ascending and transverse colon was very edematous, translucent, yellowish gray, and thickened to a depth of 15 mm. in certain places. The ascending and transverse mesocolon were also very edematous, and on section exuded clear serum. The mesenteric lymph glands, especially those near the head of the pancreas, were enlarged and purplish. The entire mesentery was very edematous. The duodenum sagged downward from the head of the pancreas toward the promontory of the sacrum 8 cm. below its normal position. Shining through the peritoneal coat of the intestine could be seen numerous oval, purplish patches varying from 1 to 5 cm. in long diameter. They appeared most numerous in the jejunum, but could be found throughout the small intestine.

The esophagus was unchanged. In the stomach were found eight purplish, acuminate, swollen nodules averaging 8 mm. in diameter in the mucosa, some on the rugae and others between them, sharply demarcated from the normal gray membrane. The first and second portions of the duodenum were markedly dilated, the walls at this point being purplish, thickened, edematous and studded with a number of irregularly shaped, elevated nodules varying in size from 5 to 25 mm. in diameter, in some places becoming confluent. The central portion of the surface of the lesions was covered with necrotic membrane. The upper portion of the jejunum was markedly involved, the valvulae conniventes being very edematous, grayish and translucent. Scattered over the mucous membrane were numerous purple elevated nodules averaging 8 mm. in diameter, surmounted by yellowish necrotic tissue. Most of these nodules were found to be enormously swollen solitary lymph follicles, although some of the lesions occurred independently of the lymph tissue. These small lesions were found along the course of the intestine down into the ileum, where it was found that Peyer's patches were outlined by purplish thickened areas which could be seen especially well shining through the serous coat, the overlying vessels of which were hyperemic and formed a distinct network. On the mucous surface, Peyer's patches were less distinct, although there was some thickening, and a dull purple marked their location. In the lower end of the ileum as the cecum was approached, the lesions became fainter, less thick and farther apart. No discrete lesions were found in the mucosa of the cecum or colon, but their walls were very edematous. The spleen weighed 209 gm., and the pulp was soft and diffluent.

Anatomic Diagnosis.—This was:

1. Malignant pustule on face.
2. Acute splenic tumor.
3. Anthrax enteritis.
4. Seropurulent peritonitis.

Bacteriologic Findings.—Anthrax bacilli were found in the heart's blood and peritoneal exudate.

Histologic Findings.—Sections of the intestinal lesions and mesenteric lymph nodes were similar to those of Case 1.

Section of the spleen, stained by the Gram-Weigert method, revealed anthrax bacilli scattered through the pulp.

SYNOPSIS

These two cases present the following salient features:

1. Marked involvement of the first portion of the duodenum.
2. Selective action of the infection for the lymphatic tissue of the intestine, somewhat analogous to typhoid fever.
3. The accumulation of the bacilli in the germ centers of the involved lymph nodes.
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5. Penetration of the entire thickness of the intestine and invasion of the peritoneum, producing seropurulent peritonitis.
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The probable mode of transmission of the infection to the intestine was by contamination of the food by the fingers infected by the scratching of the initial lesion induced by the intense itching that usually accompanies the process. The sterilization of the patient's hands before meals or the wearing of rubber gloves is suggested as a useful measure in the treatment of anthrax to prevent the fatal intestinal involvement.

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CHICAGO

Unhappily it not infrequently transpires that the physician, when acting as expert in medicolegal cases, leaves the witness stand painfully conscious of having failed, perhaps ignominiously, in his attempt to lay his opinion fairly before the court. In this event, he and the attorney who engaged his services alike suffer from a sense of disappointment and discomfiture.

In a brief discussion of medicolegal cases in which either insanity is set up as a defense in a criminal charge or it is sought to prove that insanity, apoplexy or some other disease has destroyed testamentary capacity, it is my purpose to offer hints or suggestions which, if accepted, might in my opinion measurably minimize the liability to such a distressing experience.

By way of introduction to a given case, I hold that it is of cardinal importance that the attorneys who seek his assistance should submit to the expert all facts and information which they have reckoned on as possessing medical significance in support of the contention which they wish to establish. This material should then be thoroughly analyzed and discussed, and a definite understanding reached between lawyer and physician as to the position the latter is willing to attempt to maintain on the witness stand, taking care especially to anticipate what answers might have to be given to questions put in cross-examination; for although a candid expression of his opinion at this initial stage may terminate the expert's further connection with the case, superficial or hasty performance of this preparatory work only too surely invites disaster when the medical witness enters the box.

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Those cases may first be considered in which it is claimed for the defendant that he was insane when he committed the particular criminal act with which he stands charged.

The wide variation between the services demanded of the medical expert in the trial of these cases and those required of the clinician when engaged in the examination of a patient should be kept prominently in view throughout. According to my observation, this distinction, if not altogether ignored, rarely receives the recognition which its importance merits.

In the trial of the cases under consideration, the essential question is: Was the defendant insane when a specified act was committed? The definition, "Insanity is a disease affecting the brain so as to cause a change in feeling, thinking and acting which disqualifies the individual for supporting the ordinary relations of life," is one which in practice has much to commend it. Having adopted it as working formula, the alienist should insist on the importance of limiting the inquiry to the discovery of evidence tending to prove that the designated change had or had not taken place. In this sort of investigation it may be held that there is only one insanity, and that it is not material to attempt to determine into what particular group or class its predominating manifestations would properly place it. Thus much unprofitable wrangling over the vexed and illusory problem of classification may be avoided; the obligation to undertake the baffling and hopeless task of elaborating and erecting a clinical entity that shall correspond, satisfactorily, to such terms as dementia praecox, paranoia, manic-depressive insanity, pyromania, or what not, disappears. Similarly it is not material to prove that the defendant's family is or is not tainted or that he himself has or has not suffered from any disease, injury or stress, commonly recognized as an exciting cause of insanity. And in the same category may be placed as immaterial such subjects as pathology, prognosis and treatment.

To obscure or shift the real issue would appear to be a well recognized measure of legal strategy. With a textbook before him, the opposing counsel may attempt to draw the expert into a discussion of subjects of more or less importance clinically and in regard to which the opinions of students are more or less at variance, but which are not material to the question before the court. If by any crafty device the witness can be maneuvered into foreign and at the same time highly speculative and controversial territory, and there drawn into a discussion, the opposing counsel will attempt to maintain in argument that answers conceding that certain topics are open to debate are admissions that the expert is in doubt regarding the real question at issue. As a matter of course, assuming that proper preparation has been made, tactics of this nature will be promptly and duly opposed.

As instances of attempting to shift the issue, two cases may be cited. In the first, in order to secure a verdict for their client, the counsel rested their hopes on showing that he was subject to predisposing, and in the second to exciting, causes of insanity.

Case 1.—A working man lost all his hard earned savings through having made, as he supposed, a joint investment with a man in whose ability and integrity he reposed confidence. For reasons good and sufficient from his point of view he discovered that he had been heartlessly betrayed; and under circumstances of a supremely exasperating nature, he killed the man who he believed had compassed his ruin. A plea of insanity was set up in his defense, and his attorneys occupied several days, indeed by far the major part of the whole time taken by them in the examination of witnesses, in attempting to prove the importance of heredity as an etiologic factor in insanity, and that the defendant's grandfather was insane.

Case 2.—A woman, actuated by hatred and revenge, cunningly contrived and executed a plan involving arson and murder. In conformity with the plea of insanity made in her defense, for several months prior to her trial she was confined in a hospital for the insane, where the uterus and ovaries were removed. At the subsequent hearing, numerous physicians testified that they had examined the exsected organs, found them obviously diseased, and that their condition constituted convincing evidence of the insanity of the woman from whom they had been taken.

Obviously, the obligation to prove that a given individual was insane at a designated time cannot be fairly met by demonstrating ever so conclusively that he was subject to any or all recognized causes. And conversely, neither is evidence intended to prove the absence of cause material when seeking to establish sanity.

As already stated, the line of inquiry should be directed with a purpose of discovering such a change in the individual as will warrant a diagnosis of insanity. This implies gaining an intimate acquaintance with the personal history from early childhood if possible; for the expert must estimate the departure of questionable conduct from that normal to the individual by comparing it with his usual personal characteristics; and this, of course, implies a searching scrutiny of the circumstances or setting of the debatable act or acts.

Lawyers are prone to be governed by the popular fallacy that it is possible to construct a more or less definite[1] mental norm embracing a specified range of moral, emotional and intellectual reaction which may serve as a general standard of comparison, for the purpose of determining the significance of particular conduct as indicating the sanity or insanity of the person who has exhibited it. Thus, failing to recognize that every individual has a mental norm peculiar to himself with which alone any of his questionable acts must be compared, the counsel feels impatient when the expert insists that the previous personal history be fully and minutely developed. He wishes to proceed directly to the task of demonstrating how widely the conduct under investigation is at variance with his conception of a general norm as described above. He is eager to produce witnesses of fact to prove that certain grossly irregular and unconventional acts were committed, and he believes that this proof alone should afford a sufficient foundation for the basis of an expert opinion. Or if, on the other hand, his purpose is to prove the sanity of his client, he attempts to expand the dimensions of what he assumes should be accepted as a standard mental norm so that it will easily include all deportment under scrutiny, and to this end he usually quotes the published eccentricities of various historical characters who, if insane, had probably never been publicly so adjudicated. When, in prosecuting this line of contention, counsel asks if the cited practices or opinions denoted the insanity of the person to whom they were attributed, the expert witness may logically reply that such a question could not be fairly answered unless a very full and minute record of the individual's personal history was available.

Though the suit was a civil action, the following case may be briefly cited to illustrate my contention that, in order to establish a charge of insanity, the cardinal issue is to prove that the person in question has undergone certain changes in feeling, thinking and acting:

Case 3.—The widow and surviving children of a gentleman who had risen from obscurity to a position of national prominence in industrial and financial circles attacked his will, charging insanity. Perodic debauches, when he would consort exclusively for perhaps a week or more with disreputable people of both sexes exercising no restraint in matters of sexual or alcoholic indulgence, were relied on by the prosecution as sufficient to prove the contention. The testimony of the widow who had married the testator when both were quite young, suffering under a keen sense of lifelong neglect and humiliation, was voluble, minute and convincing when describing the reprehensible practices of her deceased consort; among other statements she testified that she had conducted very searching investigations which had demonstrated conclusively that he had gone on these "high sprees" throughout the whole course of their married life, and even prior to their marriage. Since impairment of business sagacity or any other evidence of derangement of the mental faculties was not claimed, in order to win his case, it was necessary for the counsel for the defense merely to lead the witness on cross-examination to reiterate her direct testimony, which showed conclusively that the periods of moral laxity that were being offered as evidence of the testator's insanity were nothing more than instances of the practice of a lifelong habit.

The medical expert should be careful not to permit the developing fascinations which not infrequently appear in the progress of a case to induce him to invade the proper province of the lawyer and attempt to direct how his special contribution shall be brought into requisition during the course of the trial. When he has critically weighed and sifted all available evidence with reference to its medical significance, and explained clearly to the counsel what position he will undertake to maintain or direct, as well as what he will be obliged to admit on cross-examination, the expert may fairly claim to have discharged his responsibility. For on reflection it seems altogether probable that in the examination of witnesses and in argument, an experienced and well qualified barrister is much better able to judge just how such information as the medical witness may impart to him can be used to advantage than would the expert himself.

In legal practice, many formalities have to be observed which appear superfluous to the layman; but investigation will usually disclose the fact that such arbitrary and minute methods of procedure are essential to the preservation of some basic principle of law or practice; and perhaps it is only fair to allow that some of the proposed amendments submitted by members of our profession to improve methods long in vogue in the conduct of medicolegal cases clearly demonstrate that their proponents have not duly recognized the importance of yielding to these fundamentals. The expert is naturally impatient to have the facts and opinions that he is prepared to present submitted frankly and directly to the jury; the trial lawyer, on the other hand, in the interest of his client must take into account a variety of considerations in the introduction of evidence. In selecting the jury, the personal characteristics of his experts as well as the testimony he expects from them should, no doubt, strongly influence his choice; for, obviously, before going into action a prudent combatant would set his target with due reference to the range of his ordnance.

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[1] Mental Norm is proposed as a convenient term by which to designate normal emotional, moral and intellectual reaction.

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At that time the patient complained of no pain, and was lying quietly in bed. His right lower leg was tremendously swollen, tense, bluish-black, and with several blebs, varying in size from 1 to 6 cm. in diameter, and filled with dark reddish fluid. The foot was swollen and blue, and the toes were also somewhat swollen, blue and cold. Above the knee the leg was swollen, the color being a reddish purple, gradually fading into a dull reddish to about the junction of the middle and lower thirds of the thigh, where a sharp raised irregular line of demarkation was present. The tissues of the calf of the leg were tense, and crepitated on pressure. There was no evidence of any wound. The patient's appearance at that time was one of profound toxemia, with sunken eyes and anxious expression, the temperature being 103, and the pulse 120 and somewhat thready. A mere glance at the part was sufficient to make a diagnosis of gas bacillus infection, and the patient was at once transferred to the surgical department, where multiple linear incisions were made in the calf of the leg and in the thigh. As soon as the tissues of the calf were cut, the part burst open, exuding frothy, reddish fluid with a very foul odor. The tissues were completely destroyed, the muscles having a dark necrotic appearance. The patient died that afternoon. The body was at once removed to the morgue, as much blood as possible was drained out, and 3 liters of embalming fluid were at once injected. In spite of this the tissues swelled and the body became discolored, presenting a most repulsive appearance. Postmortem incisions showed complete necrosis of the muscles of the calf down to the bone. The bacteriologic examination of the contents of the vesicles and of the bloody, foamy fluid in the incision, and smears of pieces of necrotic muscles showed numerous typical short, thick, encapsulated bacilli. Inoculations were made anaerobically into boiled agar, and typical pure culture of *B. aerogenes-capsulatus* was obtained showing also gas formation in the medium.

COMMENT

This case presents one of the fearful accidents which happen once in a great while and for which no one on the staff of the hospital can be blamed. From the same tube containing the tablets of caffein sodiobenzoate, other hypodermic injections were given to other patients. All the tablets in this particular tube had been used and the tube had been thrown away before the diagnosis was made, so that no opportunity was given to examine the contents of the tube for the presence of the gas bacillus.

The question naturally arises at once, Where did this infection originate? On going over the history carefully, it seems to us that the only explanation possible is that this man carried on his person spores of the gas bacillus. He came from a small town in Georgia and was a blacksmith by occupation. Naturally a man from such a place, in such work, was dealing constantly with animals, particularly horses, and the very nature of his work exposed him to contamination from manure on his lower legs. He had had on both arms a number of hypodermic injections, with no resulting infection. However, the very first injection under all aseptic precautions, in the calf of his leg, at once gave rise to a virulent gas bacillus infection. There is no doubt in our minds that this man's occupation was the indirect cause of his death. It emphasizes anew the well known fact that too little attention is paid on the part of physicians and nurses to the occupation of the patient. Had it been realized that this man was a blacksmith, both the ward surgeon and the nurse might have hesitated to inject anything into the lower leg because of the rare chance of inducing some virulent infection with an organism which was present on the skin, as an incident to his occupation.

INFLUENZA AND INFLUENZAL PNEUMONIA AT FORT RILEY, KANSAS

FROM SEPT. 15 TO NOV. 1, 1918

WILLARD J. STONE, M.D. (TOLEDO, OHIO)
Major, M. C., U. S. Army; Chief of Medical Service, Base Hospital
AND
GEORGE W. SWIFT, M.D. (SEATTLE)
Captain, M. C., U. S. Army; Brain Surgeon, Section of Head Surgery, Base Hospital
FORT RILEY, KAN.

At the time of the epidemic of influenza[1] and influenzal pneumonia, the military population of the United States Reservation at Fort Riley was 63,374, distributed as in Table 1.

The total number of cases of influenza were divided as shown in Table 2. The influenza incidence for the population of the military reservation was 23.9 per cent.

As will be observed in Table 3, 2,624 instances of pneumonia occurred during the epidemic, of which 2,496 were definitely traccable to influenza.

TABLE 1.—MILITARY POPULATION AT FORT RILEY

	No.
Camp Funston (10th Division), average strength of command..	53,027
Fort Riley Post	4,902
Medical Officers' Training Camp	4,145
Base hospital	1,300
Total	63,374

TABLE 2.—CASES OF INFLUENZA

	No.
Treated at camp hospitals, Camp Funston	5,368
Treated at camp hospitals, Medical Officers' Training Camp....	697
Treated at base hospital	9,105
Total	15,170

TABLE 3.—CASES OF PNEUMONIA

	No.
Recovered and returned to duty	690
Convalescent	599
Partially convalescent, Nov. 1	329
Empyema (not carried as pneumonia but *resulting* from epidemic)	65
Deaths from pneumonia	941
Total	2,624

The largest number of influenza and pneumonia patients admitted to the base hospital was on September 30, when 785 were received. The largest total number of patients in the hospital was 5,666, October 8, of whom 2,951 had influenza and 719 influenzal pneumonia. The largest number of pneumonia patients at one time under treatment in the base hospital was 1,338, October 15, as shown in the accompanying chart. The incidence of pneumonia among influenza patients was 17.2 per cent (2,624 in 15,170).

Varying degrees of lung involvement associated with bronchitis occurred among all influenza patients. The evidence in many instances appeared insufficient to warrant a diagnosis of pneumonia, but it must be conceded that the differences were rather of degree than of kind. It is extremely probable that many more influenza patients had patches of lobular pneumonia than were diagnosed as having them, progressing rapidly to recovery in seven or eight days. We have no evidence from this series that death occurred in influenza except from pneumonia or its complications.

The total number of deaths from pneumonia during the epidemic was 941, a pneumonia mortality rate of

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[1] The term "influenza" is used in the commonly accepted sense cover t epidemic of acute respiratory disease, for the i of wh nzae, or an unknown virus, may be responsi

35.8 per cent. During this period ninety-five deaths from pneumonia occurred in which there appeared to be no evidence of preceding influenza. It is reasonable, however, to assume that influenza was the contributing cause of the acute respiratory infection. The total death rate as a result of influenza was 6.2 per cent.

The death rate from pneumonia did not reach its height until about one month after the epidemic began. The largest number of deaths (eighty-one) occurred October 13.

Among 941 fatal instances of pneumonia, the admission diagnoses are given in Table 4 and the final clinical diagnoses in Table 5. The average length of illness in the hospital before death was 7.3 days, and the average length of hospital residence for the recovered patients, 21.6 days.

TABLE 4.—ADMISSION DIAGNOSES IN NINE HUNDRED AND FORTY-ONE FATAL INSTANCES OF PNEUMONIA

Diagnosis	No.
Influenza	495
Pneumonia	351
Measles	43
Pleurisy	4
Other conditions	48
Total	941

TABLE 5.—FINAL CLINICAL DIAGNOSIS IN NINE HUNDRED AND FORTY-ONE FATAL INSTANCES OF PNEUMONIA

Diagnosis	No.	Per Cent.
Lobar pneumonia:		
Right lung	201	21.4
Left lung	129	13.7
Right and left	162	17.2
Indeterminate	225	23.9
Total	717	76.2
Bronchopneumonia	224	23.8
Total	941	100.0

TABLE 6.—FINAL CLINICAL DIAGNOSES IN SIX HUNDRED AND NINETY RECOVERIES FROM PNEUMONIA

Diagnosis	No.	Per Cent.
Lobar pneumonia:		
Right lung	210	30.4
Left lung	163	23.6
Right and left	37	5.4
Indeterminate	59	8.6
Total	469	68.0
Bronchopneumonia	221	32.0
Total	690	100.0

TYPES OF INFECTION

Table 7 shows the prevailing types of infection reported by the laboratory for 928 specimens of sputum examined during the epidemic. Since cultures and type determinations were made only for patients with pneumonia or those with suspected pneumonia, the table represents the types of respiratory infection recognized during the epidemic. Because of the labor involved it was impossible to secure routine specimens for all patients.

Among seventy-seven fatal instances of influenzal pneumonia, the organisms isolated prior to death were as given in Table 8.

Among 163 instances of influenzal pneumonia in which the patients recovered, the organisms isolated were as given in Table 9.

NECROPSY FINDINGS

In a series of fifty-five necropsies, lobar pneumonia was present in eighteen instances, or 32.7 per cent.; bronchopneumonia in fifteen instances, or 27.2 per cent.; while lobar pneumonia and bronchopneumonia were found combined in twenty-two instances, or 40 per cent. This large percentage of combined lobar pneumonia and bronchopneumonia (massive pneumonia) was more marked than had been earlier observed in a series of more than 200 pneumonia necropsies during the same year.

In lobar pneumonia, both the left and the right lungs were involved in 23.6 per cent.; the right lung alone in 5.4 per cent., and the left lung alone in 3.6 per cent. The various pathologic lesions are shown in Table 10.

TABLE 7.—LABORATORY REPORTS ON ALL SPUTUM EXAMINED

	Number	Per Cent.	
Pneumococcus Type I	70	7.6	
Pneumococcus Type II	58	6.2	
Pneumococcus Type III	55	5.9	62.6
Pneumococcus Type IV	329	35.4	
Pneumococcus Type II or IV*	69	7.5	
B. influenzae	32	3.4	
B. *influenzae* and pneumococcus Type IV	128	13.9	18.7
B. influenzae and other organisms	13	1.4	
Streptococcus hemolyticus and *other* organisms	5	0.5	4.8
Streptococcus hemolyticus	40	4.3	
Nonhemolytic streptococcus	49	5.2	
Other organisms, not specific	80	8.6	
Total	928	100.0	

* Diagnostic Type II serum was not available for a period of about 8 days.

TABLE 8.—SPUTUM CULTURES IN SEVENTY-SEVEN FATAL INSTANCES OF INFLUENZAL PNEUMONIA

	Per Cent.
Pneumococcus Type I	11.6
Pneumococcus Type III	5.2
Pneumococcus Type II or IV	60.0
B. influenzae	5.2
Nonhemolytic streptococcus	7.7
A gas-producing bacillus*	9.0
Staphylococcus albus	1.3

* Not the bacillus of Welch.

TABLE 9.—SPUTUM CULTURES IN ONE HUNDRED AND SIXTY-THREE INSTANCES OF INFLUENZAL PNEUMONIA WITH RECOVERY

	Per Cent.
Pneumococcus Type I	7.9
Pneumococcus Type II	20.0
Pneumococcus Type III	7.3
Pneumococcus Type IV	50.0
Nonhemolytic streptococcus	11.0
Staphylococcus albus	3.0

PATHOLOGY

General Pathology.—The most striking involvement of organs usually not particularly associated with the pathology of pneumonia has been emphasized in this series. This refers particularly to the brain, the sinuses, the middle ear and the myocardium. It will be noticed that, despite the prevalence of the streptococcus at necropsy, only eight instances of so-called interstitial pneumonia were found in the series of fifty-five necropsies. We believe, from an experience in a series of 200 cases of pneumonia of interstitial type last March and April, that the pathologic picture depends much on the time of death, the time of death being largely dependent on the systemic invasion of the tissues by the infection. If the pneumonia is essentially streptococcic, and early systemic invasion occurs, death occurs early, with the pathologic picture of interstitial pneumonia. If streptococcic systemic invasion occurs later, for reasons not explainable except on the basis of varying antecedent types of associated infection or specific resistance, death occurs later and the pathologic picture no longer shows interstitial pneumonia but shows massive involvement brought about through the confluence of many areas of peribronchial infiltration involving many lobules and eventually entire lobes. The difference is one of degree rather than of kind. In this series of influenzal pneumonias the interstitial type was uncommon, while massive involvement of both lungs was frequently seen. As will be noticed under necropsy cultures, the streptococcus was the preponderating type of infection. Systemic invasion occurred late, since the average stay in the hospital before death was more than seven days.

It will be noticed that, despite the difficulties in the diagnosis of the type of pneumonia before death, the clinical and necropsy findings were in close accord in that bronchopneumonia was diagnosed clinically in 23.8 per cent. and found at necropsy in 27.2 per cent.; lobar pneumonia was diagnosed clinically in 76.2 per cent. and found at necropsy in 72.6 per cent.; while the combined forms of massive pneumonia were diagnosed as indeterminate clinically in 23.9 per cent., and at necropsy were found to occur in 40 per cent.

TABLE 10.—PATHOLOGIC LESIONS IN INFLUENZAL PNEUMONIA, BASED ON FIFTY-FIVE NECROPSIES

	Number	Per Cent.	
Lungs:			
Lobar pneumonia	18	32.6	
Bronchopneumonia	15	27.2	
Combined lobar and bronchopneumonia (including eight instances of interstitial pneumonia)	22	40.0	
Bronchi:			
Bronchiolitis purulenta	14	25.4	
Pleura:			
Pleurisy, fibrinous acute, right	3	5.4	
Pleurisy, fibrinous acute, left	3	5.4	
Pleurisy, fibrinous acute, bilateral	6	10.9	
Pleurisy with effusion, right	11	20.0	
Pleurisy with effusion, left	2	3.6	
Pleurisy with effusion, bilateral	2	3.6	
Pleurisy, suppurative, right	1	1.8	
Pleurisy, suppurative, left	2	3.6	
Pleurisy, suppurative, bilateral	1	1.8	
Pneumothorax	1	1.8	
Heart:			
Dilatation,* right (associated with parenchymatous changes)	31	56.3	
Dilatation, both ventricles	7	12.7	
Pericarditis, serous	1	1.8	
Pericarditis, hemoserous	1	1.8	
Pericarditis, fibrinopurulent	3	5.4	
Kidneys:			
Nephritis, parenchymatous, acute	23	41.8	
Congestion, acute	1	1.8	
Nephritis, diffuse, chronic	4	7.2	
Cloudy swelling	20	36.3	
Liver:			
Cloudy swelling	34	61.8	
Fatty degeneration	2	3.6	
Biliary pigmentation	4	7.2	
Emphysema:			
Subcutaneous, mediastinal and mesenteric	8	14.6	
Peritoneum:			
Peritonitis, localized	1	1.8	
Peritonitis, purulent, acute	1	1.8	
Brain (total number examined 41):			
Edema	9	21.9	80.4
Meningitis, subacute, serous or purulent	4	9.7	
Meningitis and edema	20	48.8	
Sinuses:			
Sphenoiditis	28	68.3	
Ethmoiditis	13	31.7	
Frontal sinusitis	2	4.9	
Ears:			
Otitis media and mastoiditis	17	41.4	

* The term "dilatation" refers to a relaxed and thinned condition of the walls of the ventricles, associated with increased size and increased patency of the valvular orifices. Definite parenchymatous degenerative changes existed in the myocardium in many instances.

Among the associated changes, chronic tuberculosis was present, involving the lungs and glands of the hilum in five instances, or 9 per cent. Acute endocarditis was not observed. Substernal pus pockets, so frequently seen in streptococcus pneumonia following measles, were absent. Pulmonary thrombosis occurred in one instance involving the right branch of the artery and extending with many ramifications into the smaller branches. The patient lived twelve hours. At necropsy the left femoral vein contained a thrombus occupying about 6 inches of its lumen. One sudden death occurred during sleep, five days after convalescence from pneumonia. The necropsy revealed enormous dilatation of the right ventricle; the heart apex was in the left anterior axillary line, the right border four finger-breadths to the right of the sternum. Thrombosis of the anterior tibial artery occurred in two instances subsequent to pneumonia followed by dry gangrene of the affected foot. In one of these patients about a week after a Chopart amputation of the foot, a partial pulmonary thrombosis occurred involving the left pulmonary artery, with an area of consolidation posteriorly (tubular breathing and whispered voice) about 10 cm. square, due to the infarction. Bloody expectoration was delayed for about forty-eight hours. Sudden dyspnea with rapid heart rate and moderate cyanosis occurred coincident with the physical findings. Recovery occurred.

Brain Pathology.—Edema: Edema of the brain, as observed in this series of necropsies, was marked. The arachnoid was widely separated from the pia. The cerebral vessels were distended; the ventricles were dilated; the optic nerve sheaths were so separated as to appear like funnels about the nerves. In some cases a plastic exudate appeared along the vessel margins; cultures of the exudate were taken in only a few instances. These cultures revealed pneumococci.

Meninges and Ventricles: The meningitis was of the subacute basilar type. It was not always present; but when edema was marked, it was invariably associated with a slight plastic exudate. The dura in some instances clung to the arachnoid, especially along the base of the brain. The exudate associated with the edema formed a mat about the greatly distended cerebral vessels. This was especially noticeable where the choroidal plexus had its origin along the under surface of the velum interpositum. This "basilar mat" of vessels and exudate was thickened and gelatinous in those cases in which distention of the ventricles was most marked. The veins of Galen were matted with the plexus. The underlying aqueduct of Silvius showed partial occlusion; its roundish shape was flattened. The distention of the lateral ventricles seemed to be due to this "basilar mat" of vessels and exudate. The outflow, through the veins of Galen, was blocked because of this exudative process. This accounted for part of the distention of the ventricles, while failure to relieve the distention by spinal puncture could be attributed to the occlusion of the aqueduct of Silvius. In no case were hemorrhages found in the basilar nuclei.

Sinuses: After removal of the brain, the dura of the base was examined for inflammation due to extension from the sinuses and middle ear. In no case could any connection be determined. The sphenoid was approached from the sella after removal of the pituitary body. In twenty-eight cases (68.3 per cent.), pus was present; in some it was under great pressure and drained for several minutes, while in others it was scanty. That it was a frequent complication early in the infection was proved; but that it was always present or that it was the primary localizing point of infection was not found true in this series of cases. The prevailing type of infection was a hemolytic streptococcus, which was present singly or in combination in 46.4 per cent.

The ethmoid sinus was involved on one or both sides in only thirteen cases (31.7 per cent.), a relatively small number; but this percentage increased during the epidemic. The frontal sinus was infected in only two cases. A rudimentary frontal sinus on one or the other side was not uncommon. The prevailing type of infection was a hemolytic streptococcus, which was present singly or in combination in 25 per cent.

The Middle Ear and Mastoid.—In seventeen cases (41.4 per cent.), either one or both middle ears were involved. In two cases, an acute congestion was noted. In the others, a thin, yellow pus filled the cavity as well as the mastoid cells. There was no bone necrosis in the mastoid, even in cases of several days' duration. On section, the pus drained freely, leaving glistening surfaces. The drum membrane was apparently normal. The amount of pus that would drain into the cranial fossa was surprisingly large in quantity. The absence of bone infiltration was perhaps the most surprising feature. Extension of the infection to the cells of the mastoid was present in every case examined. The prevailing type of infection was a hemolytic streptococcus, which was present singly or in combination in 35.3 per cent.

TABLE 11.—NECROPSY CULTURES

	Times Isolated	Per Cent.
Lungs (number of cultures examined, 51):		
Pneumococcus	11	21.5
Pneumococcus and B. influenzae	13	25.5
Pneumococcus and Streptococcus hemolyticus	1	2.0
Pneumococcus and Strept. hemo. and B. influenzae	3	5.8
Pneumococcus and nonhemolytic streptococcus	1	2.0
Pneumococcus and Staphylococcus	1	2.0
Streptococcus hemolyticus	14	27.4
Streptococcus hemolyticus and B. influenzae	3	5.8
B. influenzae	1	2.0
B. influenzae and M. catarrhalis	1	2.0
Nonhemolytic streptococcus	1	2.0
Staphylococcus	1	2.0
Peritoneum (number of cultures examined, 2):		
Pneumococcus	2	100.0
Pleural fluid (number of cultures examined, 26):		
Pneumococcus	6	23.0
Pneumococcus and Streptococcus hemolyticus	1	3.8
Pneumococcus and B. influenzae	1	3.8
Streptococcus hemolyticus	16	61.5
Streptococcus hemolyticus and B. influenzae	1	3.8
Nonhemolytic streptococcus	1	3.8
Spleen (number of cultures examined, 11):		
Pneumococcus	5	45.4
Streptococcus hemolyticus	5	45.4
B. influenzae	1	9.0
Heart's blood (number of cultures examined, 30):		
Pneumococcus	11	36.6
Pneumococcus and Streptococcus hemolyticus	1	3.3
Streptococcus hemolyticus	14	46.6
Streptococcus hemolyticus and B. influenzae	2	6.6
Nonhemolytic streptococcus	1	3.3
Diplococcus, type undetermined	1	3.3
Spinal fluid (number of cultures examined, 3):		
Pneumococcus	2	66.6
Streptococcus hemolyticus	1	33.3
Sphenoid sinus (number of cultures examined, 28):		
Pneumococcus	7	25.0
Pneumococcus and Streptococcus hemolyticus	3	10.7
Pneumococcus and B. influenzae	7	25.0
Streptococcus hemolyticus	5	17.8
B. influenzae	1	3.5
B. influenzae and Streptococcus hemolyticus	2	7.1
B. influenzae, Pneumococcus and Strept. hemo.	3	10.8
Ethmoid sinus (number of cultures examined, 12):		
Pneumococcus	3	25.0
Pneumococcus and B. influenzae	5	41.7
Pneumococcus and Streptococcus hemolyticus	1	8.3
Pneumococcus and nonhemolytic streptococcus	1	8.3
Streptococcus hemolyticus	1	8.3
Streptococcus hemolyticus and B. influenzae	1	8.3
Ear and mastoid (number of cultures examined, 17):		
Pneumococcus	2	11.7
Pneumococcus and Streptococcus hemolyticus	3	17.5
Pneumococcus and B. influenzae	5	28.4
Streptococcus hemolyticus	2	11.7
B. influenzae and M. catarrhalis	2	11.7
B. influenzae, M. catarrhalis and pneumococcus	1	5.8
Nonhemolytic streptococcus and M. catarrhalis	1	5.8
B. influenzae, pneumococcus and Streptococcus hem.	1	5.8
Tissue cultures (number of cultures examined, 8); subcutaneous and mediastinal emphysema:		
Pneumococcus	1	12.5
Streptococcus hemolyticus	2	25.0
Nonhemolytic streptococcus	1	12.5
Micrococci, type undetermined	1	12.5
Gas-forming bacillus*	3	37.5

* An unknown bacillus isolated in all from 9 cases by Major Oscar F. Broman, M. C., chief of the laboratory service, was frequently obtained by cultures of tissues from the mediastinum, neck, chest and mesentery, in which an unusual development of gas formation had occurred during the course of the pneumonia. Major Broman has thus described the organism: Morphology: rod-shaped with rounded ends; length from 1 to 6 microns; central spores were formed in forty-eight hours' growth. Stain: gram-positive; also stains with ordinary anilin dyes. Motility: slight, flagella present. Cultures, facultative anaerobe; gas is produced; grows in ordinary mediums; liquefies gelatin; forms acid in litmus milk and Hiss serum water. Sugars: The simple sugars are markedly fermented, the disaccharids to less degree, the polysaccharids slightly or not at all. Pathogenicity: low for guinea-pigs, rabbits, mice, rats and for man. Does not produce necrosis or gangrene of tissues.

BACTERIOLOGIC FINDINGS

Reference to Tables 8 and 9, showing sputum examinations in seventy-seven fatal instances of influenzal pneumonia and 163 instances in which recovery occurred brings out the interesting fact that hemolytic streptococci were not reported in the sputum of any of these patients, while cultures made at necropsy revealed this organism as the preponderating type of infection in a great many instances.

The result of seventeen blood cultures, made during the week of October 11-18, from patients with influenzal pneumonia or some complication, is given in Table 13.

A series of nasopharyngeal cultures on influenza patients was made by the laboratory staff at Camp Funston during the height of the epidemic, from September 25 to October 19. Human blood-agar plates were used. The results are given in Table 14.

SUMMARY OF EVIDENCE OF INVASIVE FEATURES BY B. INFLUENZAE

B. influenzae was the predominating organism obtained in 35.7 per cent of 300 nasopharyngeal cultures from influenza patients. Among 928 sputum cultures from influenzal pneumonia patients, the majority of whom recovered, influenza bacilli were found in 18.7 per cent. Among seventy-seven instances of fatal influenzal pneumonia, the sputum cultures revealed influenza bacilli in only 5.2 per cent.

This evidence strengthens the belief that the influenza bacillus, or some unknown virus, merely served to predispose to pulmonary infection with organisms commonly known to produce pneumonia, such as the pneumococcus and *Streptococcus hemolyticus.*

TYPES OF INFECTION RESPONSIBLE LOCALLY FOR INFLUENZAL PNEUMONIA

It is well known that in any epidemic of acute respiratory disease the organisms responsible for the development of pneumonia are usually those that have been demonstrated to prevail commonly in the particular locality. For about one year prior to the onset of this epidemic of influenzal pneumonia, the hemolytic streptococcus (with the exception of two months, July and August) had been the preponderating type of infection in the U. S. Military Reservation, Fort Riley. It had been responsible for many fatal pneumonias, for the serious complications in pneumonia (68.4 per cent. of 155 operative empyemas[2]), for many mastoid infections, and for many acute surgical conditions. We were not surprised, consequently, at its prevalence as the associated type of infection in the pneumonias that followed influenza. If one ascribes to the hemolytic streptococcus the rôle of secondary invader it does not in any way lessen its importance. In seventy-seven fatal instances of influenzal pneumonia and 163 cases with recovery, this organism was not found in the sputum cultures. It was found in only 1.7 per cent. of 300 nasopharyngeal cultures from influenza patients, and yet, in fifty-five pneumonia necropsies this organism was obtained in 41.1 per cent. of tissue cultures. It was, in addition, obtained from 41.5 per cent of the pleural fluids of sixty-five patients with empyema who came to operation as a result of the epidemic.

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[2] Stone, W. J.; Phillips, B. G., and Bliss, W. P.: A Clinical Study of Pneumonia Based on Eight Hundred and Seventy-One Cases, Arch. Int. Med. 22:409 (Oct.) 1918.

It is well known that the tonsil crypts harbor the hemolytic streptococcus in from 75 to 85 per cent. of those examined by various workers. Mouth carriers of this organism are relatively common. This organism has also been frequently isolated from many other tissues not always associated with disease processes. The fact that the nasopharyngeal cultures were so largely negative for this organism in this series does not mean, of course, that the infection did not exist in the tonsils. It seems fair to assume that its presence in the tissues of the body may not be, in the vast majority of instances, incompatible with health; but it is evident, in view of the necropsy findings here recorded, that whatever organism or virus may be responsible for the acute respiratory invasion, the hemolytic streptococcus, whether introduced from within or from without, became the most serious factor in the production of high mortality.

CLINICAL FEATURES

Bleeding from the nose and lungs was relatively common. Cyanosis was marked comparatively early in the course of the disease and was not, in the majority of patients, associated with air hunger. It was not relieved by venesection. The heart rate was not markedly increased in many instances until shortly before death. A rate of from 100 to 104 was not uncommon. Prostration out of all proportion to the apparent extent of pulmonary involvement was marked. In the majority of patients a remission in the fever occurred about the third day and proved a deceptive feature. Many patients manifested a recrudescence of lung symptoms with increased fever on the day following and, with increasing stupor or delirium, died in from sixty to seventy-two hours. Leukopenia was almost a constant feature. Leukocyte counts of 2,000 per cubic millimeter were not uncommon.

Delirium was a prominent symptom in many patients with pneumonia. This was temporarily relieved by lumbar drainage of from 50 to 70 c.c. of spinal fluid. The congestion of the cerebral vessels with edema, distention of the lateral ventricles and subacute basilar meningitis were the pathologic conditions found at necropsy. These conditions were responsible for the delirium, meningismus, choking of optic disks and increased spinal fluid pressure. In markedly delirious patients the ophthalmoscope revealed a characteristic and more or less constant picture. The fundus vessels were engorged and tortuous, the disks congested, the cup and vessel sheaths edematous. From the necropsy findings (distention of nerve sheaths by edema) one would expect this ophthalmoscopic picture. In no case of known sphenoid involvement, without delirium, were changes found in the ocular fundi. In one case of acute ethmoid sinusitis, a papilledema was noted. This was relieved on drainage of the ethmoids by shrinking the nasal mucous membrane.

The relationship of sinusitis involving the sphenoids and ethmoids to basilar meningitis could not be determined. From the clinical standpoint more attention should be paid to the involvement of these tissues in any acute respiratory infection, since drainage by shrinking the nasal mucous membrane, by means of an aqueous spray of 4 per cent. antipyrin, relieved these conditions.

TABLE 12.—SUMMARY OF NECROPSY CULTURES POSITIVE FOR STREPTOCOCCUS HEMOLYTICUS

	Per Cent.
Lungs	41.0
Pleural fluids	61.9
Spleens	45.4
Heart's blood	56.5
Spinal fluids	33.3
Sphenoid sinuses	46.4
Ethmoid sinuses	25.0
Ears and mastoids	35.3
Tissue cultures	25.0
Average per cent. positive	41.1

TABLE 13.—RESULTS OF BLOOD CULTURES IN INFLUENZAL PNEUMONIA

	No.	Per Cent.
Pneumococcus (type undetermined)	3	17.6
Streptococcus hemolyticus	3	17.6
Sterile	11	64.8

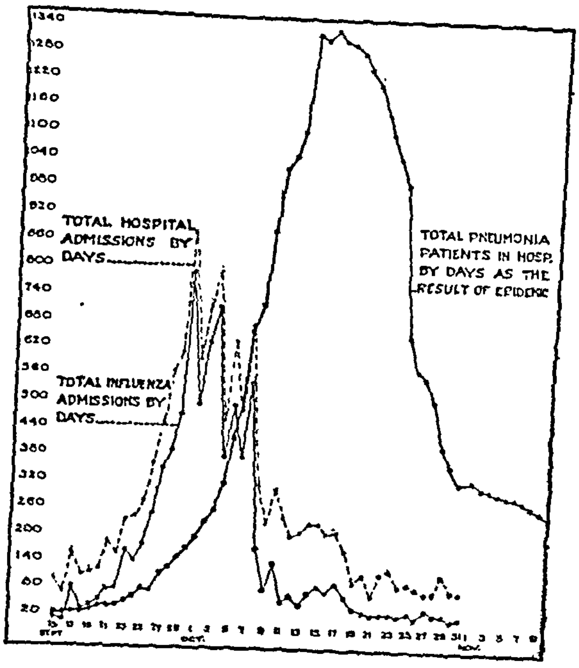
TABLE 14.—RESULTS OF THREE HUNDRED THROAT CULTURES IN INFLUENZA

	Per Cent.
B. influenzae (predominating)	35.7
Pneumococcus (predominating); type undetermined	27.0
M. catarrhalis (predominating)	23.0
Streptococcus hemolyticus (predominating)	1.7
Nonhemolytic streptococcus (predominating)	2.0
Miscellaneous organisms	10.4

Mastoiditis as a complication of influenzal pneumonia was found in seventeen necropsies (41.4 per cent.). Clinically, otitis media, with tenderness over the mastoid area, was a complication in a great many cases. The first symptoms were dull aching pain and slightly diminished hearing in the affected ear. Examination disclosed a bleb on the tympanum or a bulging drum. Hemorrhage from the external canal, which was not uncommon, signified rupture of the bleb on the tympanum. Such cases were not followed by otitis media, and the pain was relieved. Patients who presented a bulging drum as evidence of otitis media required paracentesis. The findings at necropsy and the roentgenograms of many patients demonstrated that the mastoid cells were involved with the middle ear in all cases. *Streptococcus hemolyticus* was the predominating organism in the cultures from the mastoid as well as the blood stream. Bone necrosis was conspicuous by its absence in the mastoids examined at necropsy. Six patients with otitis media-mastoiditis came to operation. In these six cases the organism found in cultures taken from the cells at the time of operation was *Staphylococcus albus*. This undoubtedly was due to infection from the external auditory canal. The absence of bone necrosis was due to the sudden onset, the prompt drainage of the middle ear, either spontaneously or by paracentesis, and the fact that the patients were in good physical condition at the time of infection. Had the sequence been such as occurs in measles, streptococcus tonsillitis or scarlet fever (an otitis media with gradual involvement of the mastoid cells), extensive bone necrosis would have been the result. The time factor appeared to be of great importance in determining the presence or absence of bone necrosis.

The absence of bone necrosis and the presence of blood stream invasion by *Streptococcus hemolyticus* in this series sheds light on the extensive epidemic of mastoiditis seen at this hospital last winter and spring. The mastoiditis that occurred at that time (164 cases) presented a more serious type of infection. Likewise, *Streptococcus hemolyticus* was the organism isolated in the majority of cases. The otitis media occurred with a delayed time interval subsequent to streptococcus tonsillitis, measles or scarlet fever. This type of otitis media was rapidly followed by mastoiditis of the fulminating variety. Operation within forty-eight hours in many instances revealed extensive necrosis of bone. Frequent complications (compared to civil practice) were meningitis and septic arthritis. Exposure of the lateral sinuses and the dura did not account for the invasion of the meninges or blood stream, because in cases in which these structures were not uncovered, the complications developed quite as frequently.

We have gained the impression that there may be a very definite connection between meningitis and the trauma of the mastoid operation, if done with a chisel. The meningeal involvement followed too rapidly to be due to direct extension from the mastoid, and the necropsies showed no connection. The majority of instances of meningitis occurring in pneumonia with an associated otitis media are the result of blood stream invasion. Those instances that occur following a mastoid operation in pneumonia may be precipitated by the trauma; but blood stream invasion is probably the important factor.



Total hospital admissions, influenza admissions and pneumonia patients at Fort Riley, Sept. 15 to Nov. 1, 1918.

Three deaths occurred from influenzal pneumonia developing during the course of meningococcus meningitis, and three deaths resulted from pneumococcus meningitis in patients with pneumonia (without otitis media).

Alkaline drinks were useful in treatment of herpes labialis. Tincture of digitalis, standardized by the cat method of Hatcher and Eggleston, was used according to the body weight of the patient as a routine measure. Edema of the lungs, with the expectoration of large quantities of blood-tinged foam, was a conspicuous incident in many fatal cases. The presence of severe pleural pain with expiratory grunt was always suggestive of effusion twenty-four hours later.

In about thirty instances, subcutaneous emphysema was noticed. It was not always fatal, but occurred frequently among patients who died. The emphysema was usually first noticed at the suprasternal notch, and spread rapidly over the chest, neck, scalp and abdomen to the thighs. Its development did not seem to be associated with severe paroxysms of coughing. Empyema occurred in less than 10 per cent. of the pneumonias. This was in marked contrast to our experiences earlier in the year, in which empyema occurred in 200 of 871 completed cases of pneumonia (22.9 per cent.).

SUMMARY

1. Among a military population of 63,374, an acute respiratory disease called influenza appeared in epidemic form affecting 15,170 individuals (23.9 per cent.).

2. The incidence of pneumonia among influenza patients was 17.2 per cent.

3. Among 2,624 pneumonia patients, 941 deaths occurred in forty days, a mortality of 35.8 per cent.

4. The final clinical diagnoses among 941 fatal instances were: lobar pneumonia, 76.2 per cent.; bronchopneumonia, 23.8 per cent. At necropsy, in fifty-five instances, the diagnosis of combined lobar pneumonia and bronchopneumonia (massive pneumonia) was made in 72.6 per cent., bronchopneumonia in 27.2 per cent.

5. Among 300 nasopharyngeal cultures from influenza patients on human blood agar, *B. influenzae* was the predominating type of infection in 35.7 per cent. In the sputum cultures from 928 pneumonia patients, *B. influenzae* occurred singly or in combination in 18.7 per cent. Among seventy-seven fatal instances of pneumonia, *B. influenzae* was found in the sputum cultures in 5.2 per cent.

6. At necropsy, in fifty-five instances of pneumonia, cultures from the lungs, pleural fluids, heart's blood, sinuses, mastoids and tissues revealed the pneumococcus in 56.1 per cent., and *Streptococcus hemolyticus* in 41.1 per cent. The hemolytic streptococcus was, in addition, isolated in 41.5 per cent. of sixty-five empyemas resulting from the epidemic. This was to be expected since the hemolytic streptococcus had been the predominating type of associated infection in pneumonia throughout the preceding year in this locality.

7. No deaths occurred in this epidemic except from pneumonia or its complications. Although the hemolytic streptococcus was responsible for death in the majority of instances, interstitial pneumonia was not a prominent feature. When death occurred early in streptococcus pneumonia (three or four days), the pathologic picture was that of the interstitial variety. This was particularly true of the pneumonia following measles, as judged by earlier experience with this type of infection. When death occurred at a later period, as in this epidemic, it appeared that through the confluence of many areas of peribronchial pneumonia, contiguous lobules and eventually entire lobes or a whole lung had become involved in a massive type of pneumonia.

8. Systemic invasion of many organs and tissues by the infections responsible for the pneumonic process (the pneumococcus and streptococcus) was evident at necropsy. This refers particularly to the brain and meninges, the middle ear, mastoid and sinuses.

9. In forty-one necropsies, meningitis of subacute basilar type associated with edema was a striking feature in 58.5 per cent., while brain edema without meningitis was present in 21.9 per cent. Otitis media and mastoiditis existed in 41.5 per cent., while sphenoiditis was present in 68.3 per cent. and ethmoiditis in 31.7 per cent.

10. Bone necrosis of the mastoid was conspicuously absent in influenzal otitis media and mastoiditis. This

was in marked contrast to otitis media following measles, streptococcus tonsillitis or scarlet fever in which, because of the length of the preceding illness and the condition of the patients, the development of middle ear infection was delayed; but when it occurred mastioditis was rapidly followed by bone necrosis.

CONCLUSIONS

1. *B. influenzae* had not been frequently encountered in the sputum or throat cultures of patients in this locality during the year preceding the outbreak of this epidemic.

2. From the facts given it appears that *B. influenzae* or an unknown associated virus was responsible for the invasive features of this epidemic of acute respiratory disease, but that, as the cause of death in the subsequent pneumonias and their complications, the pneumococcus and the hemolytic streptococcus, which was associated with it and which was an organism prevalent in this locality, were largely responsible.

3. From experience based on the study of 1,100 patients with pneumonia treated in the medical service of this hospital during the year preceding this epidemic, it is believed that pneumococcus pneumonia, when the hemolytic streptococcus is not prevalent or associated with it, is a disease with relatively low mortality. During an interval of two months (July and August, 1918) preceding this epidemic, in a series of 151 instances of pneumococcus pneumonia the mortality was 9.9 per cent. During these months the hemolytic streptococcus was rarely encountered (1.8 per cent. of 162 sputum cultures), and but one empyema occurred, the causative organism being the pneumococcus.

4. Generalized systemic invasion by the combined infections producing pneumonia occurred in many instances in this epidemic. On the time of such systemic invasion in a pneumonia patient depends, to a large degree, the time of death and the extent of the pathologic processes seen at necropsy. Blood stream invasion with involvement of many organs due to breakdown of defensive barriers may occur only a short time before death. This explains the large percentage of negative blood cultures in pneumonia, unless taken shortly before death.

5. As a source of information concerning the type of infection present in acute respiratory disease suspected to be due to the hemolytic streptococcus, because of its prevalence in any locality, cultures from tonsil surfaces and crypts on blood-agar plates are recommended.

6. Otitis media occurring during the course of influenzal pneumonia, especially if due to the hemolytic streptococcus, has, in this series, always been accompanied by mastoiditis. Drainage of the middle ear should be promptly secured. Failure to establish drainage may result in bone necrosis of the mastoid, which alone is indicative of imperative operation. Bone necrosis can be detected by roentgenograms so taken as to compare the sound with the affected side on the same plate. At time of operation, as little trauma as possible is essential. The use of the electric bone drill in removing the outer table decreases the trauma.

7. A dull occipital headache in influenza or pneumonia is suggestive of sphenoid sinusitis. Shrinking of the nasal mucous membrane by means of a spray of a 4 per cent. aqueous antipyrin solution affords relief.

8. Lumbar drainage in delirious pneumonia patients is not only a source of diagnostic information but also is a therapeutic measure of value. This should be repeated as frequently as appears necessary to relieve the pressure of fluid.

9. Tincture of digitalis, standardized to definite dosage and administered to full estimated requirement during the first twenty-four to thirty hours in pneumonia, has lessened the deaths that might be attributed to circulatory failure.

10. The most common complications in this epidemic of influenzal pneumonia were pleural effusions, empyema, pericarditis (serofibrinous or purulent), cerebral edema and meningitis, otitis media and mastoiditis, sphenoid and ethmoid sinusitis and nephritis.

11. Specific pneumococcus antiserums supplementing Cole's Type I serum are much to be desired, but more attention should be directed to the rôle played by the hemolytic streptococcus in the production of the epidemic types of pneumonia.

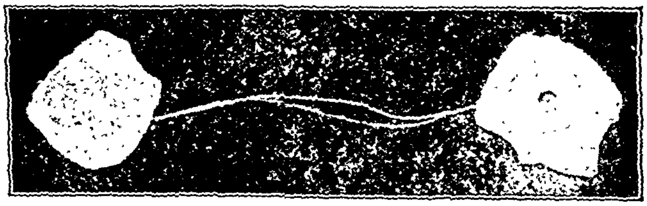
12. It is believed that not much may be expected in the specific treatment of pneumonia of the type associated with the presence of the hemolytic streptococcus until a potent antiserum for the various strains of this organism has been produced. Many serums designated as polyvalent are on the market, but opinion is by no means unanimous as to their value in the treatment of pneumonia.

Clinical Notes, Suggestions, and New Instruments

A GOOD TENSION SUTURE

Rembert H. Thigpen, M.D., Jerome, Ariz.

In this suture are employed one or more strands of silkworm gut; two small gauze sponges; two metal buttons, each the size of a 25-cent piece, and perforated at its center with a one-sixteenth inch hole, and two or more perforated shot. The sponge, button and shot holding each end of the intestine are placed a suitable distance from the line of incision, and tightened to secure the desired approximation. There occurs a pronounced ridge along the line of incision. The ends of the absorbable subcuticular suture closing the skin are treated as are the tension sutures.



Complete tension suture.

Cost of Preventable Sickness.—A recent survey of five townships in Duchess County, made by the State Charities Aid Association, disclosed the fact that preventable sickness was costing the county at a conservative estimate $412,000 a year in actual money, to say nothing of continued invalidism, bereavement and loss of productive power to the community which could not be estimated. A close study was made of 1,600 cases of serious illness and it was estimated that the county was losing 9,000 working days by men and women, and 13,700 school days, and that these two items alone were costing the community $25,000 a year.—Report of Duchess County (N. Y.) Health Association.

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SATURDAY, FEBRUARY 15, 1919

SCIENCE AND WAR BREAD

It has required the exigencies of a world war to accord science a more respectful hearing in the councils of everyday life and industry. In the past the scientist has been tolerated as a sort of visionary, incapable of securing so-called practical results, if he has not actually been snubbed by the cut-and-dry type of American. The past four years have shown conclusively, however, that the heralded genius for invention cannot be depended on to lead the way out of patent difficulties in times of great stress. Hence the refuge in the man of science as a last resort.

The food conservation movement brought our nation face to face with the necessity of using substitutes for wheat, the mainstay in our "daily bread." There can be no question as to the comparative wholesomeness of other cereals like corn, rice and barley—a conclusion for which we are indebted in turn to scientific investigation as well as to experience. But wheat has been the cereal *par excellence* in the preparation of that special dietary article, bread, which the entire world seems to crave. What special qualities render wheat so superior in baking the loaf? What are the unique characteristics that have put it into the foreground so prominently as to give it an established place in the world's common rations? Of course it has long been taught that the advantage is essentially due to the mixture of unusual wheat proteins which are insoluble in water and are commonly designated as gluten. The swollen, coherent gluten imparts to wheat-flour dough those properties of tenacity and elasticity that are peculiar to it. It permits the stretching and distending of the mass in bread making so that as the result of the action of yeast in fermenting the carbohydrates present the volume may increase four or five fold.

Innumerable difficulties in bread making are so frequently referred to that many have almost despaired of securing any trustworthy solution. The industry has at length become organized to a point at which science has been called on to lend a helping hand[1] in order to enable the practical art to keep pace with the progress of biochemistry. The extent to which the dough can be distended varies with the quantity and the physical quality of the gluten, as has long been demonstrated. But we are now shown how the baker can, within certain limits, improve the rising of the dough by modifying the physical condition of the gluten. The latter is profoundly influenced in its properties, as many proteins are now recognized to be, through the presence of acids or certain salts. According to Cohn and Henderson,[1] who have investigated these factors for the Division of Food and Nutrition in the medical department of the U. S. Army, the acidity of the dough at the time of baking *seems to* be the most important variable factor in bread making. Accordingly, simple procedures have been devised for measuring and correcting this factor.[2] The hydrogen-ion concentration of bread is related to the original acidity and to the acid-combining power of the cereals used, to the amount of yeast, and in that the activity of yeast varies with the acidity of the medium and modifies it through the acid products of its own metabolism, to the conditions of fermentation. The importance of accurate information about acidity is herewith made clear. Nothing could be simpler than the method proposed: a few drops of a solution of methyl red allowed to fall on a slice of bread, and a color chart for comparison, comprise the outfit.

These features scientifically attained, let it be reiterated, have already enabled bakers to overcome not only difficulties in the technology of bread making but also certain annoying pathologic manifestations. Ropy bread is produced by the action of certain micro-organisms, notably members of the *Bacillus mesentericus* group, of which the spores survive the heat of the oven and later attack the center of the loaf. This has been a factor of serious economic importance, greatly exaggerated by war-time conditions. It has now been demonstrated by Cohn, Wolbach and Henderson[3] at Harvard University that the organism responsible for rope cannot develop in bread when the acidity is of suitable character—an item that can now be gaged with mathematical accuracy. Measured additions of lactic acid to the dough constitute a prophylactic agency. This is a matter of no little moment at a time when there are large variations in the acidity of bread resulting from the changing formulas and different substances that bakers of late have been forced to use.

But there remains the deficit of gluten, despite all physicochemical adjustments of its properties, when other cereals must take the place of wheat. Skilful fermentation and control of acidity cannot make up for lack of gluten in wheat substitutes. However, the

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[1] For a discussion of the subject, from which many of these statements are borrowed, see Cohn, E. J., and Henderson, L. J.: The Physical Chemistry of Bread Making, Science, Nov. 22, 1918, p. 501.

[2] Cohn, E. J.; Cathcart, P. H., and Henderson, L. J.: The Measurement of the Acidity of Bread, J. Biol. Chem. **36**: 581, 1918.

[3] Cohn, E. J.; Wolbach, S. B., and Henderson, L. J.: The Control of Rope, J. General Physiol. **1**, No. 2, 1918.

Harvard investigators have demonstrated that a small addition of serum protein to doughs containing wheat substitutes functions much like the gluten and materially lessens the difficulties that have existed in the production of "victory" products. Bread prepared with blood is not an entire novelty. It may be psychologically unattractive or even objectionable to those who are vegetarians by faith; but to quote the scientific verdict, "if it is inferior to bread made of pure wheat flour, it possesses certain important qualities of its own, and its use seems to be in all respects quite unexceptionable."

THE SCIENTIFIC ASSEMBLY OF THE AMERICAN MEDICAL ASSOCIATION

The criticism has been made that the annual sessions of the Scientific Assembly of the American Medical Association are entirely too strenuous; too many section meetings go on at the same time, and practically every minute is occupied by scientific work, even the evenings often being given over to scientific work rather than social functions. The number of papers on the programs of all the sections have run as high as 350 or 400. There is no other scientific or medical convention, state, national or international, at which so many papers are read or so much scientific material is considered. In this country there is only one other convention that is similar in character—the Congress of Physicians and Surgeons of North America—which has met every three years at Washington. This is composed of some ten or twelve special societies which might be compared with the sections of our Scientific Assembly. These special societies meet only in the morning, as there is a general meeting in the afternoon which the members of the special societies are supposed to attend. Actually the afternoon and evening sessions are more social than scientific. The British Medical Association is more comparable with our association. Those who have attended the annual sessions of the British Medical Association have quickly noticed a difference—its scientific work is confined to the morning hours, while the afternoons and evenings are given over to social matters, garden parties, conversazioni, tea, cricket and what not. Our British confrères seem to devote a large portion of the time at their annual meetings to having a good time and to forming new and renewing old acquaintances.

While the British Medical Association's scientific program provides for many sections, most of them hold but one or two meetings during an annual session and usually have a very short program, frequently only two or three papers. With an increasing number of sections, our annual sessions have become more and more strenuous; for those who are attached to any particular section, attendance on these meetings becomes a drudgery—hard work without relaxation. There should be a happy medium. Primarily the sections of the Scientific Assembly are for the dissemination of scientific knowledge among the Fellows; almost, if not quite, as important an object of these annual meetings should be the social aspect, the getting acquainted with other physicians, not only with those interested in a similar kind of work, but also with physicians and medical interests in other fields.

Our Scientific Assembly is a combination of fifteen, sometimes sixteen, sections. In the past, these sections have all met at the same time, both morning and afternoon, during the three days devoted to section work; and this, notwithstanding the fact that a large majority of the Fellows who attend these annual sessions are not especially interested in the work of any one section. Most of them are attracted by the programs of several or all of the sections. Many Fellows are confused by the multiplicity of good things placed at their disposal. Frequently they become bewildered by this complexity of the program and fail to take advantage of any of the scientific work.

These faulty conditions have been recognized for some time. They constituted the first problem taken up by the Council on Scientific Assembly. In 1917, the Council proposed a plan for abating the evil. This provided for three meetings for a majority of the sections, but allowed certain others to hold five or six. The plan was adopted, but later in the session a protest was made, presumably because the scheme favored certain sections to the disparagement of others, and the House of Delegates reconsidered its action. Last year, the House directed the Council on Scientific Assembly to study this problem and to formulate a definite plan of procedure for future meetings. In compliance with these instructions a tentative program was worked out by the Council and was presented to a meeting of the secretaries of the sections held in Chicago, February 6. This scheme was the same as that adopted in 1917, except that all sections were treated alike. The secretaries discussed the subject thoroughly and were enthusiastic in favoring its adoption. It was agreed, further, that the proposal should be put into effect this year at Atlantic City.

Each section at the coming Scientific Assembly will be limited to one meeting each day, half to hold morning sessions and the other half afternoon sessions. Special attention was given to the grouping, so that sections devoted to allied subjects will alternate. For example, the ophthalmologist may attend his own section in the morning and that on laryngology in the afternoon; the internist may attend the Section on Practice of Medicine one half day, and the other half day the Section on Surgery, Pathology or Pharmacology. Loyalty to a particular section has been and is an important factor in developing the Scientific Assembly of the Association. However, the new arrangement will encourage rather than discourage full attendance on the sections in which a Fellow may be particularly interested. He will now be able to attend other sections without his conscience being disturbed by feeling that he is neglecting that section to which he should give his entire allegiance.

The new arrangement simplifies the programs, equalizes attendance on the sections, broadens the scope of the discussions, and, finally, affords opportunity for social gatherings.

A NEW RECORD FOR ALTITUDE

One of the scientific by-products of the war has been a greatly enhanced understanding of the physiology of altitude. Only a few years have elapsed since the establishment of an international physiologic laboratory on Monte Rosa in the Alps, an undertaking sponsored by the late physiologist Angelo Mosso of Turin to promote the investigation of the numerous obscure questions relating to human welfare and functioning at considerable heights. By studies made there and elsewhere, mountain sickness has been shown at length to be due fundamentally not to the merely mechanical effects of decreased air pressure in the ears and on the blood vessels, but rather to oxygen deficiency attributable to the low partial pressure of this gas at considerable altitudes.

The institution of aviation as a practical performance has raised novel problems in relation to travel at high altitudes. To the fundamental question of the effect of the barometric pressure per se has been added the complicating circumstance that the aviator does not ascend or descend slowly and secure any benefits of gradual adjustment to new conditions or any real acclimatization. On the contrary, he is subjected to sudden physiologic strains of considerable severity. These features were reviewed in a series of papers in The Journal under the title "Medical Studies in Aviation."[1] The investigations of the Medical Research Laboratory of the Air Service at Mineola, L. I., have demonstrated the possibility of studying many of the factors of aviation as it concerns the aviator by exposing the individual to partial pressures of oxygen comparable with those likely to be encountered in air travel. Thus a person confined in a closed chamber from which the air is partially exhausted will experience phenomena of malaise with which observers of symptoms at high altitudes have made us familiar. Mere withdrawal of the oxygen alone, such as occurs by rebreathing air in a confined space, whereby this gas is gradually used up, likewise suffices to induce the symptoms. In either case they can be relieved by administration of oxygen; and the altitude effects can be averted if oxygen is respired in due season as a precautionary measure.

In studies of this sort by the physiologic experts of our air service, the possibility of enduring barometric pressures comparable to an altitude of 35,000 feet has been convincingly demonstrated, the proper supply of oxygen having been maintained during the diminishing air pressure. It is of no small interest, nevertheless, to learn that the demonstrations thus provided in tests on the ground have been verified under the actual conditions of flight in the air itself. Within the past few weeks Captain Lang, the Australian aviator, accompanied by Lieutenant Blowes, in a flight from England has recorded the achievement of the world's record for altitude by reaching the height of 30,500 feet, or nearly six miles, in a biplane. To accomplish this it was necessary to ascend into air thinner than that which is pierced by Mount Everest.

How important the oxygen factor is in such performances is certified by the collapse and unconsciousness of Blowes at an altitude of 20,000 feet, owing to a defect in the tube supplying him with oxygen. At the maximum altitude reached, a temperature of 38 F. below zero was recorded, that is, 70 degrees below the freezing point of water. The aviators suffered severely from the cold despite the devices adopted to keep them warm. It is not improbable that this feature of life at very high altitudes will offer a greater practical difficulty than the more readily remediable diminution in the partial pressure of oxygen. In the case of mountain climbers the problems of relieving oxygen shortage and suffering from cold are augmented by the extreme muscular exertion required under most unfavorable conditions for exercise. Whether the "highest spires" of the world can ever be climbed cannot be decisively answered from physiologic considerations alone; but with Mount Everest attaining a maximum of only 29,000 feet, we may safely admit the contention of a recent commentator, who stated that "the new lord of height is the airman."

CALCIUM AND INFANTILE TETANY

As The Journal recently pointed out,[1] Noël Paton and his collaborators of Glasgow University have come to the conclusion that the tetany of animals deprived of their parathyroid glands and the idiopathic tetany of man are identical as regards their characters and metabolism. The implication is that an error in the chemical exchanges of the organism results in an intoxication by guanidin derivatives, a disturbance in parathyroid function being assumed to underlie the abnormal conditions. So far, however, as infantile tetany is concerned, Howland and Marriott[2] of the Department of Pediatrics at the Johns Hopkins University insist that enough studies have been made to show that parathyroid lesions in infancy are the exception and not the rule. Furthermore, they maintain that parathyroid lesions as severe as have been found after tetany may occur in patients who, during life, have shown absolutely no evidences of this symptom.

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[1] Medical Studies in Aviation, J. A. M. A. **71**: 1382 (Oct. 26) 1918.

[1] The Parathyroids and Idiopathic Tetany, editorial, J. A. M. A. **71**: 1661 (Nov. 16) 1918.

[2] Howland, John, and Marriott, W. McK.: Observations on the Calcium Content of the Blood in Infantile Tetany and on the Effect of Treatment with Calcium, Bull. Johns Hopkins Hosp. **29**: 235, 1918.

In searching for other possibilities of etiologic significance, so far as the tetany of children is concerned, the Baltimore pediatricians have turned their attention to the blood. By a striking series of analytic determinations they have furnished seemingly incontrovertible evidence of a diminution of the calcium in the serum in cases of active tetany. The quantity of this element in the serum of normal infants as well as in placental serum is singularly constant—above 10 mg. and rarely more than 11 mg. per hundred c.c. of serum.

In eighteen cases of idiopathic tetany, on the other hand, it averaged 5.6 mg., being greatly reduced in all cases. Furthermore, it was found that this constancy in the diminution of calcium in the serum—a reduction of 40 per cent. in many instances—affords some means of differentiating tetany from other convulsive disorders in infancy. In rickets, often but not always associated with infantile tetany, there may be a slight reduction in the calcium, but this does not seem to be obligative.

Calcium and magnesium are known to be physiologically antagonistic to each other in some instances. Analyses of the magnesium content of infantile blood justify Howland and Marriott in saying that this element plays no determining rôle in the production of the symptoms of tetany. The logical sequence of the discovery of a lowered calcium content in the blood was to attempt to increase the amount of this alkali earth element. Administration of calcium chlorid with the food has proved efficacious, thus substantiating the hopes of the investigators. They assert that severe or dangerous symptoms must sometimes be held in check by sedatives until calcium in full doses produces its effect. Thereafter only calcium need be given.

These practical contributions to the diagnosis and therapy are of themselves commendable and helpful. Scientific curiosity cannot stop here, however. It seeks the ultimate causes of disease. Howland and Marriott's conception of tetany is that some factor, at present unknown, causes a reduction of the calcium content of the blood. When this drops to an amount roughly between 6 and 7 mg. of calcium per hundred c.c. of serum, frank evidences of tetany arise. This amount, however, is not the same with all individuals. With some it may be as low as 5.5 or 6, with others as high as 7.5. These symptoms occur in outbursts so long as the calcium remains low. When the calcium rises, the symptoms disappear. The height to which the calcium must rise in order that the symptoms must disappear is also somewhat variable.

It remains to be seen whether the belief that many of the symptoms of infantile tetany are directly referable to the diminished calcium content of the blood, and that they may be prevented or caused to disappear by calcium therapy, is irreconcilable with other current hypotheses. The "alkalosis" factor noted by some experimenters and emphasized in recent studies of gastric tetany[3] cannot be put aside, though Howland and Marriott found no evidence for it in the serum of infants with tetany. They admit that the symptoms of tetany and the lowering of the calcium content of the blood serum may be produced in a variety of ways. What is the still unknown factor that apparently may effect the same symptom through seemingly unrelated channels? Parathyroid deficiency, alkalosis, lowered calcium in the circulation—these are possible incidents in some profound phenomenon that remains to be discovered.

Current Comment

OHIO FINDS A BETTER WAY

It has long been customary for physicians to oppose bills licensing followers of cults and sects. This attitude was taken originally in the hope of upholding the standards of medical practice, for the public good. In spite of opposition, however, sooner or later the various sects have secured the legislation thus desired. As a result of this attitude of physicians, the public has concluded that the opposition to the passage of sectarian laws is to prevent competition, in spite of the facts that the laws have never restrained the sectarian and that his competition has never been injurious to the physician. Much more serious has been the public belief that such bills were of interest only to physicians, and that so far as they affected the public health the medical profession would protect the interests of the people. The public has never felt any responsibility in the matter, while the medical profession has incurred unjustifiable criticism in its efforts to protect the public. Evidently physicians are beginning to see things in a clearer light. In the Ohio state legislature a bill has been introduced exempting Christian science practitioners from the educational requirements of the state law. When the bill came before the Public Health Committee of the legislature, the usual argument between the Christian scientists and the doctors was expected. Greatly to the surprise of the legislators, however, the chairman of the committee of the Ohio State Medical Association announced that the association would take no position in regard to this bill. He pointed out that the proposed measure would not in any way affect physicians but that it was a menace to the public health, in permitting unqualified and untrained persons to treat the sick. As this is a matter which concerns the health of the people of the state rather than the welfare of physicians, it is only right that it should be settled by the people themselves. The result of this unexpected statement was that the laymen on the legislative committee who had sat by indifferently, expecting that the rights of the public, so far as they were endangered by the measure, would as usual be protected by the physicians, suddenly began to sit up and take notice when they found the responsibility for protecting the health of their constituency placed squarely on their own shoulders. The bill is still before the legislature. The medical profession has performed its full duty in pointing out the danger to public health which would be involved in its passage. Whatever action is taken by the legislature will be with full knowledge of the consequences. This is the ideal attitude for physicians to take, as should have been recognized long ago. The responsibility of protecting the public from disease and of securing better health conditions belongs to the people. It is not the function of the medical profession to maintain lobbies or to endeavor to secure public health measures by political methods. The true function of the medical profession is to advise the people, to show them how to protect themselves. The doctor's mission is to be a teacher and not a political manipulator. The responsibility for public health conditions must rest with the people and not with any special class or profession. The sooner these general principles are recognized, the better it will be for the medical profession and for public health advancement.

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[3] Tetany and Alkalosis, editorial, J. A. M. A. 72: 350 (Feb. 1) 1919.

THE DANGER IN ASIA

Asia is the home of plague and many other pests. At first thought this does not concern us. But the presence of plague in epidemic form, especially in the ports of the Orient, does constitute a menace to Americans. The facilities for travel have brought Asia and our Pacific coast together, while the possession of the Philippines has multiplied the occasions for intercourse with the inhabitants of the Far East. Thus the diseases of Asia threaten to some degree the lives and health of the American population, and the situation regarded from this point of view has been aggravated by the conditions of war. Therefore it may be truly affirmed that the persistence of plague in India and China is a source of danger to this country and one that must be guarded against. All these points have been emphasized previously, but owing to existing circumstances taken in connection with the unvarying persistence of plague in Asia, it seems timely to lay further stress on them. An exchange[1] points out that the present epidemic of plague in Asia began in Hong Kong in 1894 and in Bombay in 1896, and has persisted since then. It was as deadly and widespread as ever during the first three months of 1918, that is, twenty-two years after the original outbreak. Moreover, so long as the rat is infected in a locality, just so long will man be liable to the disease. The obstacles in the way of successfully grappling with the plague problem in Asia are numerous and almost insurmountable. The natives object to wholesale inoculation and rat destruction; hence the only effective mode of procedure is most difficult to carry out. Religious scruples against the slaughter of animals, even vermin, are prevalent throughout India. Consequently it may be taken for granted that plague will continue to persist in Asia; and as it is extremely rife in the two great ports of that continent, Hong Kong and Bombay, it is not an impossibility that it will be conveyed thence to American ports on the Pacific coast, if necessary precautions are not taken. While there is no doubt that our health authorities are awake to the danger, at the same time it is well to know that the danger exists and will exist as long as plague persists in Asia.

SCIENTIFIC PAN-AMERICANISM

In commenting on the Spanish Edition of The Journal,[1] we stated that nowhere could the friendship and close relationship between the republics of the Western Hemisphere be more fruitful than in the field of science, and especially of medical science. An evidence of the fact that our sentiments are reciprocated and that we were voicing ideas that were generally held throughout Pan-America is contained in the letters received from our colleagues in all the Latin American countries in reference to our Spanish-American Edition. The same ideas have inspired editorials appearing in recent issues of the Cronica Médico-Quirúrgica of Havana.[2] These strongly emphasize the point brought out in The Journal and so well expressed in one of these editorials. To quote: "The ties uniting the peoples of America are growing constantly stronger. It is the logical effect of the international political situation which aids in making more effectual this union between the young peoples who are gazing absorbed at the tremendous drama which is being played before our eyes on the other side of the Atlantic. We, like many of our colleagues, insist that it is necessary for us to know each other better, to increase the relations of friendship and confraternity between the sister republics." The Journal may add that it will be only too glad to participate in any movement which has for its object the bringing together, both scientifically and socially, of the physicians of the Western Hemisphere, and to do everything in its power to transfer the project from the realm of expectation to that of accomplishment.

OASES

The country is really going dry. Still there seems to be hope for the alcoholically thirsty. So long as one of the largest mail-order houses in the country continues to sell *Vinum Carnis et Ferri, N. F.* in gallon jugs the drought may not be as noticeable as it might otherwise. Seriously, however, isn't it about time for the professions of medicine and pharmacy to heave into the discard such utterly unscientific combinations as "Beef, Wine and Iron"?

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[1] Plague and Its Persistency, editorial, J. Trop. Med. and Hyg., **21**: 242 (Dec. 16) 1918.

[1] A Spanish Edition of The Journal of the American Medical Association, editorial, J. A. M. A. **71**: 1914 (Dec. 7) 1918.

[2] Solidaridad Médica Americana, Crón. méd.-quir. de la Habana **44**: 487 (Sept.) 1918; El Pan Americanismo científico, *ibid.* **44**: 535 (Oct.) 1918.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending February 7, the Medical Corps contained 22,821 officers, a decrease from the previous week of 603. The Medical Reserve Corps contained 626 officers. The total number of medical officers discharged since the beginning of the war is 13,753.

Archangel Medical Corps for American Troops

The commanding general at Archangel, after a personal inspection of the hospitals and dressing stations of the Siberian forces, has sent a cablegram to the British War Office in which he states that the medical arrangements are excellent. Less than 4 per cent. of the American troops are in hospitals. Evacuation of casualties over 120 miles of road by sledge has been carried out efficiently and with the least possible suffering to the patients. The sanitation of the country is poor, but is being bettered by every means available. There is hospital accommodation for 20 per cent. of the Allied and American troops of the force, and this percentage can easily be increased. It is stated that there are plenty of medical supplies and equipment, including a railway ambulance train accommodating 100 patients; there are also 100 ambulance sledges.

Destination of Sick and Wounded Air Men

The War Department announces that sick and wounded men of the air service flying personnel, on arrival at ports of debarkation will be sent to the U. S. Army General Hospital No. 2, Fort McHenry, Baltimore, or if convalescent to the Air Service Depot, Garden City, L. I., N. Y. Flying personnel patients when convalescent will be sent either to the Military Convalescent Hospital, Cooperstown, N. Y., or to the Air Service Depot, Garden City, L. I. The necessary transport history will be sent with patients in all cases to the medical board at the Air Service Depot.

Slightly Wounded

The following medical officers have been reported as having been slightly wounded: Arthur L. Weisgerber, Capt., Perry, Kan.; John L. Riley, Lieut., Henryetta, Okla.; Francis Michael Ginley, Lieut., Dunmore, Pa.; David Chapman Bull, Lieut., Naugatuck, Conn.; Othel J. Gee, Lieut., Timpson, Texas; Frank H. Long, Lieut., Buffalo; Thel Hooks, Lieut., Smithfield, N. C.; Maurice Exiner, Lieut., New York City; Angus J. Smith, Lieut., Greenville, Fla.; Harold V. Raycroft, Lieut., Brooklyn; Hilmer Thorer Skovholt, Lieut., Williston, N. D.; George H. Spivey, Lieut., Hollandale, Miss.; Walter Williamson Manton, Capt., Detroit; Thomas C. Ross, Capt., Philadelphia, and William Henry J. O'Brien, Lieut., New York City.

Wounded, Degree Undetermined

The following medical officers have been wounded (degree undetermined): Edward H. Atkin, Lieut., Hoisington, Kan.; Harry S. Van Etten, Lieut., Stroudsburg, Pa.; Thomas M. Moore, Lieut., Hagood, S. C.; Eugene Robert Van Meter, Lieut., St. Louis; Samuel J. Marks, Lieut., Philipsburg, Pa.; Paul Rainey McLaughlin, Major, Guysville, Ohio; Martin A. O'Brien, Lieut., Cleveland; Frank Brady, Lieut., Dawson, N. M.; Harvey C. Updegrove, Lieut., Easton, Pa.; William W. Walcott, Lieut., Natick, Mass.; Clinton B. Staley, Lieut., Enfield, Ill.; George L. Stickney, Capt., Baltimore; Myron Hall Farmer, Capt., Newman, Ga.; Arthur W. Hubbard, Lieut., Wyoming, N. Y.; Bertram H. Buxton, Lieut., Providence, R. I.; Guy Seward, Capt., Leola, Iowa; George W. Krick, Lieut., Reading, Pa.; Lee C. Gatewood, Capt., Chicago, and Thomas J. McHugh, Lieut., Nashville, Tenn.

Severely Wounded

The following medical officers have been reported as having been wounded severely: William Mathias Hoel, Lieut., Lockwood, Mo.; John H. Gilpin, Capt., Fort Wayne, Ind.; Gilbert M. Roberts, Capt., Chattanooga, Tenn.; Samuel Zuckerman, Lieut., New York City; Carl L. Cline, Capt., Dayton, Ohio; James H. S. Morrison, Capt., Cumberland Gap, Tenn.; Edwin L. Lawson, Lieut., Sylvester, Ga.; Zodoc L. Weatherford, Lieut., Red Bay, Ala.; Henry B. Beeson, Capt., Cornell, Wis.; George R. Baker, Capt., Tomahawk, Wis.; Leo D. Applewhite, Capt., East St. Louis, Ill.; Myron Hanna, Lieut., Deshler, Ohio; Max R. Charlton, Capt., Spokane, Wash.; Clyde W. Jump, Capt., Tacoma, Wash., and Thomas R. Gagion, Capt., Pittston, Pa.

Prisoners Released

The following officers reported as prisoners have been released from the German prison camp at Villingen: Bernard J. Gallagher, Lieut., Minneapolis; Franklin B. Pedrick, Lieut., Washington, D. C.; James Earl Quigley, Lieut., Adrian, Pa.; John T. Hardesty, Capt., Winfield, Mo.; Arthur A. Mitten, Capt., Milwaukee; Arthur H. Sewing, Capt., St. Louis; Maurice S. Redmond, Lieut., Pittsburgh; Robert B. Rhett, Lieut., Charleston, S. C.; Henry Leo Rothman, Lieut., Washington, Mo.; Guy D. Tibbetts, Lieut., Bennington, N. H.; Dirk Bruins, Major, St. Petersburg, Fla.; Benjamin P. Burpee, Capt., Manchester, N. H., and Howard Francis Kane, Capt., Bangor, Me.

Erroneous Reports

John H. Shaw, Lieut., M. C., U. S. Army, Plymouth, Mass., has been erroneously reported to have been killed in action. ——Walter N. Mundell, Capt., M. C., U. S. Army, Hutchinson, Kan., is erroneously reported to have died from disease.

Missing

The following medical officers have been reported as missing in action: John G. Skilling, Lieut. Lonaconing, Md.; John Walter McElroy, Rebecca, Ga., and Harry C. Preston, Lieut., New York City.

Distinguished Service Awards

The commander in chief in the name of the President has awarded the distinguished service cross to the following named officers:

KARL J. SWENSON, Captain, M. C., U. S. Army, Portland, Ore., 316th Sanitary Train. For repeated acts of extraordinary heroism in action near Very, France, September 28, to October 30, to November 3, 1918. During the drive in the Forest of Argonne, Captain Swenson established and maintained a dressing station at Very under almost constant aerial raids and severe shell fire During the operations between the Lys and Scheidt Rivers this officer repeatedly showed utter disregard for his own life, maintaining liaison between his own advanced dressing station and the battalion aid stations and searching for wounded on the battle field while he was exposed to heavy fire from artillery, machine gun, and snipers.

DONALD MINER, Major M. C., U. S. Army, Jersey City, N. J., 113th Infantry. For extraordinary heroism in action at Ormont Farm, France, October 10, 1918. Major Miner, voluntarily proceeded under heavy shell fire to an advanced aid station. For four hours he worked unceasingly aiding the wounded and evacuating them. Finding that he could work more effectively without his gas mask, he discarded it, so that it would not hinder him in attending wounded men.

LOUIS DIENER, Captain, M. C., U. S. Army, Baltimore, Sanitary Detachment 112th Machine Gun Battalion. For extraordinary heroism in action in the Ravine de la Veux Mechieux, France, Oct. 26-27, 1918. Upon being notified that an enemy shell had struck a dugout occupied by the brigade radio detachment, Captain Diener ran to the aid of the buried men and worked tirelessly to rescue them. Despite the fact that numerous gas and high-explosive shells were falling in the vicinity, he continued his efforts until he was certain that the three men remaining in the ruined dugout were dead.

JOHN F. DOUDNA, Lieut., M. C., U. S. Army, 362d Infantry, Lake City, Mich. For extraordinary heroism in action. This officer was under constant shell fire with his battalion for 17 days, and though he had been painfully wounded by a machine-gun bullet, he remained at his post, rendering first aid to the wounded night and day, performing the duties of two other medical officers who had been incapacitated, in addition to his own. Lieut. Doudna's utter disregard for personal danger and complete devotion to duty made possible the rapid evacuation of the wounded, thus materially keeping up the morale of the combat troops, and alleviating the suffering of the wounded.

WILLIAM R. ARRANTS, Lieut., M. C., U. S. Army, 317th Infantry, Decatur, Tenn. For repeated acts of extraordinary heroism in action in the Bois de la Cote Lemont, France, Sept. 28, 1918, and near Nantillois, France, Oct. 5, 1918. He with his battalion aid unit accompanied his battalion into action in the Bois de la Cotte Lemont and promptly opened his aid station within 100 yards of the front line, where he worked all night under continuous fire giving aid to the wounded. When there was a shortage of stretcher bearers he assisted in bringing in the wounded. Under intense fire he undertook to locate the ambulance dressing station and personally directed the evacuation of wounded to it. In the attack from the Bois de Fay, October 5, he again went with the attacking troops and opened a first aid station in an old cellar with no cover. Under an intense barrage of shrapnel and high explosive shells he performed the most devoted service in attending the wounded working continuously for nine hours until after his unit had been ordered to retire.

REUBEN G. HAMILTON, major, M. C., U. S. Army, Ambulance Section, 101st Sanitary Train, Rockton, S. C. For extraordinary heroism in action near Marcheville, France, Sept. 25-26, 1918. He established and maintained an ambulance dressing station in an advanced and hazardous position, where he labored unceasingly, treating and evacuating the wounded, throughout the day, in full view of the enemy and under heavy bombardment. Knowing that our troops were withdrawing and the enemy was about to enter the town, he continued his aid to the wounded, even after permission to withdraw had been given him by his commanding officer.

OGDEN DOREMUS KING, Lieut., M. C., U. S. Navy, attached to the 6th Machine Gun Battalion, United States Marine Corps. For extraordinary heroism in action near the Bois de Belleau, June 9-10, 1918. On two successive days the regimental aid station in which he was working was struck by heavy shells and in each case demolished. Ten men were killed and a number of wounded were badly hurt by falling timbers and stone. Under these harrassing conditions this officer continued without cessation his treatment of the wounded assisting in their evacuation and setting an inspiring example of devotion and courage to the officers and men serving under him.

WILLIAM TIGNOR GILL, Jr., Lieut., M. C., U. S. Navy, Washington, D. C., attached to the 6th Regiment, United States Marine Corps. For extraordinary heroism in action neaer Vierzy, France, July 19, 1918. He established a forward dressing station behind the advanced lines and for 15 hours treated the wounded and directed their evacuation while subjected to intense front and flank fire and in the absence of adequate shelter. His fearlessness under these conditions saved the lives of many wounded who would otherwise have been lost to the service. He disregarded personal danger and remained in an exposed position in order to give immediate care to the unfortunate.

JOEL THOMPSON BOONE, Lieut., M. C., U. S. Navy, attached to the 6th Regiment, United States Marine Corps, for extraordinary heroism in the Bois de Belleau, France, June 9-10 and 25, 1918. On two successive days in the regimental aid station in which he was working was struck by heavy shells and in each case demolished. Ten men were killed and a number of wounded were badly hurt by falling timbers and stone. Under these harrassing conditions this officer continued without cessation his treatment of the wounded, superintending their evacuation, and setting an inspiring example of heroism to the officers and men serving under him. On June 25, 1918, Surg. Boone followed the attack by one battalion against enemy machine gun positions in the Bois de Belleau, establishing advanced dressing stations under continuous shell fire.

JAMES G. HALL, Lieut., M. C., U. S. Army, 316th Infantry, Atlanta, Ga. For extraordinary heroism in action near Montauville, France, Sept. 12-15, 1918. In spite of severe wounds, including two broken ribs, received on the first day of the action, he continued at his post for three days, administering aid to the wounded throughout the combat. Numbers of lives were saved by his heroism and devotion to duty.

ROBERT O. BLOOD, Capt., M. C., U. S. Army, 103d Infantry, Concord, N. H. For extraordinary heroism in action near Bouresches, France, July 20-23, 1918. He remained with his battalion during the entire advance working untiringly under heavy enemy fire at all times, superintending the evacuation of the wounded and caring for them in the most dangerous and exposed positions. On July 22 he established his dressing station in an advanced position that was constantly under shell fire, and many times left his station to go into the front lines to treat the wounded.

ROBERT H. MURDOCK, Lieut., M. C., U. S. Army, 47th Infantry, Wilkes-Barre, deceased. For repeated acts of extraordinary heroism in action at Sergy, France, July 29-31, 1918, and at St. Thibaut, France, August 6-12, 1918. Accompanying his battalion in the attack on Sergy, he advanced for more than a mile under heavy shell fire, and as soon as the southern half of the town had been taken he established his dressing station, maintaining it during the three days of fighting under constant and severe bombardment. When his battalion went into action at St. Thibaut this faithful officer again displayed heroic devotion to duty by working in his dressing station under the most trying conditions for six days while the town was bombarded with gas and high explosive shells.

LEO J. CRUM, Lieut., M. C., U. S. Army, 126th Infantry, Kalamazoo, Mich. For extraordinary heroism in action near Cierges, France, July 31 and August 1, 1918. During the attack against Cierges by his regiment he worked continuously and heroically under fire to treat and evacuate the wounded. When the house in which his first-aid station was located was struck by an enemy shell he safely evacuated all of his patients and promptly established another aid station near the front. His untiring efforts and personal bravery saved the lives of many wounded and suffering men and were a source of inspiration to the entire command.

FRANK L. WILLIAMS, Lieut. M. C., U. S. Army, 168th Infantry, Des Moines, Ia. For extraordinary heroism in action in Champagne, east of Reims, France, July 15, 1918, and near the River Ourcq, northeast of Chateau-Thierry, France, July 30, 1918. He voluntarily left a dugout on the Champagne front, and for more than two hours, all the time under shell fire, administered to the needs of wounded men who were lying in the open. During the advance across the River Ourcq he voluntarily remained in exposed positions under heavy shell fire, caring for and dressing the wounded, until he was severely injured.

GEORGE H. GAGE, Capt., M. C., U. S. Army, 28th Infantry, Rochester, N. Y. Conspicuous for his courage in the actions at Rambucourt on March 17, 1918, and at Cantigny, May 28, 1918, he gave inspiration to the officers and men of the command by his extraordinary heroism throughout the operations south of Soissons, July 18 to 22, 1918, and especially at Berzy-le-Sex, July 21, 1918, when he accompanied the first line and attended the wounded in the open under incessant machine gun and artillery fire.

FREDERICK W. BLACK, Capt., M. C., U. S. Army, 28th Infantry, Punxsutawney, Pa. For extraordinary heroism in action near Soissons, France, July 18-22, 1918. He went over the top to the attack in the first wave and was wounded on the morning of the first day. Disregarding his wound, he pressed on with the attacking troops and crossed and recrossed the sector immediately behind the most advanced wave, rendering first aid to wounded and placing them in shell holes. He worked unceasingly without sleep or rest and was again wounded on the fourth day by shell fire. Though twice wounded, he steadily refused to be evacuated until the evening of the fourth day, when he was exhausted and suffering from his wounds.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L., signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Arlton—McFadden, A. D. (L.)
Birmingham — Watterston, C. J. (C.)
  Wood, N. I. (L.)
Ensley—Robbins, W. J. (L.)
Forkland—Legar, J. K. (C.)
Huntsville—Wilson, F. B. (C.)
Jasper—Shepherd, R. H. (L.)
Montgomery—McConnico, F. H. (C.)
  Sellers, W. A. (C.)
  Thigpen, C. A. (M.)
Mount Vernon—Cowden, A. M. (L.)

ARIZONA

Benson—Thompson, E. B. (L.)
Johnson—Snyder, G. C. (L.)
Prescott—Carmichael, A. B. (L.)

ARKANSAS

Conway—McCallum, I. N. (C.)
Dermott—Baker, E. (L.)
Hot Springs—Smith, J. H. (L.)
Uniontown—Mitchell, J. D. (L.)

CALIFORNIA

Long Beach—Hamman, A. F. (C.)
  Harvey, E. R. (L.)
Los Angeles—Boyd, G. T. (L.)
  Conroy, C. L. (C.)
Oakland—Lohse, J. L. (C.)
Parlier—McKenney, J. A. (L.)
Sacramento—Davis, H. J. (L.)
San Diego—Harris, G. F. (L.)
San Francisco—Baer, A. B. (C.)
  Brown, V. D. (C.)
  Chipman, E. D. (C.)
  Taylor, P. A. (C.)
San Jose—Hall, J. U. (C.)
  Whiffen, R. A. (C.)
  Wise, P. L. (L.)
Trinity Center — Rowell, W. A. (C.)
Visalia—Todd, H. A. (L.)

COLORADO

Boulder—Kirkwood, R. C. (M.)
Colorado Springs — Webb, G. B. (L. C.)
Fort Morgan—Wells, N. D. (C.)
La Junta—Stubbs, A. L. (C.)
Loveland—Yates, W. W. (L.)
Pueblo—Keeney, M. J. (C.)

CONNECTICUT

Ellington—Brace, E. A. (C.)
New Haven—Elliston, R. L. (L.)
  Prince, A. L. (C.)
  Raynolds, R. (L.)
Waterbury—Smith, G. M. (C.)
Waterville — Godfrey, E. J., Jr. (L.)
West Cornwall—Grand—Lienard, R. J. (L.)

DELAWARE

Wilmington—Howell, H. W. (C.)

DISTRICT OF COLUMBIA

Washington—Dnnn, H. F. (L.)
  Key, S. (C.)
  Norton, W. H. (L.)

FLORIDA

Jacksonville—Driskell, S. E. (L.)
  Holden, G. R. (C.)
Jasper—Tompkins, R. D. (L.)
Madison—Long, E. (C.)
Ocala—McClane, F. E. (C.)
West Palm Beach—Cooley, R. O. (L.)

GEORGIA

Athens—Foster, R. B. (L.)
Atlanta—Paullin, J. E. (M.)
Clermont—Cheek, P. (L.)
Columbus—Griffith, R. P. (C.)
Douglas—Coleman, A. S. M. (L.)
Douglasville—Hamilton, R. E. (C.)
Louisville—Revell, S. T. R. (L.)
Quitman—Ward, J. A. (L.)
Rome—Shaw, W. J. (C.)
Rydal—Bradford, H. B. (L.)
Sandersville—Hannah, L. (L.)
Valdosta—Quarterman, P. C. (L.)

IDAHO

Hill City—Bloom, O. E. (L.)
Laclede—King, M. R. (L.)
New Plymouth—Drysdale, W. T. (L.)
Sandpoint—Anderson, E. T. (C.)

ILLINOIS

Altamont—Baker, C. H. (L.)
Benton—Alvis, W. H. (L.)
Bloomington—Galford, G. H. (L.)
Canton—Zeigler, W. T. (C.)
Chambersburg — McIntosh, J. H. (L.)
Champaign—Cavenee, E. L. (L.)
Chicago—Allport, W. H. (M.)
  Balsinger, W. E. (L.)
  Davis, F. A. (C.)
  Doane, P. S. (L. C.)
  Formusa, A. C. (L.)
  Greening, R. F. (L.)
  Hamburger, W. W. (M.)
  Kanavel, A. B. (Col.)
  Kell, C. T. (L.)
  Lawson, G. W. (L.)
  McKellar, M. (L.)
  Mead, D. O. (L.)
  Mowry, A. E. (C.)
  Powell, C. S. (L.)
  Quigley, W. J. (C.)
  Springwater, S. A. (C.)
  Tubergen, B. F. (L.)
Danville—Montfort, R. M. (L.)
Decatur—Schultz, H. L. (L.)
Dwight—Wilkinson, M. H. (L.)
Edwardsville—Wahl, E. F. (C.)
Evanston—Fiske, E. W. (L.)
Findlay—Gregory, C. S. (L.)
Galesburg—Stotts, A. F. (M.)
Highland—Kempff, J. W. (L.)
Ladd—Toothaker, J. E. (L.)
Lake Forest — Proxmire, T. S. (L. C.)
LeRoy—Thompson, O. M. (L.)
Murrayville—Spencer, J. H. (L.)
Naperville—Truitt, R. L. (C.)
Opdyke—Williamson, T. B. (C.)
Owaneco—Tankersley, G. A. (L.)
Pana—Littlejohn, D. M. (L.)
Shelbyville—Thompson, T. (L.)
Woodland—Dowsett, C. H. (L.)

INDIANA

Borden—Stalker, J. B. (C.)
Denver—Waymire, E. S. (L.)
East Chicago—Hale, R. P. (L.)
Fort Wayne—Calvin, W. D. (L.)
  Gilpin, J. H. (C.)

Gary—Schaible, E. L. (L.)
Gilman—Armstrong, P. (L.)
Greenfield—Sisson, E. R. (C.)
Indianapolis—McCool, J. F. (L.)
Reynolds, D. M. (C.)
Lafayette—Crockett, F. S. (C.)
New Albany—Windstandley, W. C. (C.)
Newburgh—Munns, C. J. (L.)
Petersburg—Imel, E. S., Sr. (C.)
Richmond—Grosvenor, J. J. (L.)
Roachdale—Collins, C. C. (C.)
Waldron—Coulson, S. B. (L.)
West Lebanon—Dale, H. W. (C.)

IOWA

Battle Creek — Benedict, E. P. (L.)
Davenport—Lambach, F. (C.)
Decorah—Jewell, M. D. (C.)
Elkhart—Ketchum, P. V. (L.)
Farmersburg—Ross, J. C. (L.)
Fort Dodge—Garrett, J. M. (C.)
Gravity—Reed, L. T. (L.)
Inwood—Stewart, A. P. (L.)
Lorimer—Ayres, E. C. (C.)
Mason City—Egloff, W. J. (C.)
Minden—Augustine, G. (C.)
Montezuma—King, O. W. (M.)
Neola—Bates, W. A. (C.)
New London—Boggs, N. (C.)
Storm Lake—O'Donohue, J. H. (C.)
Walnut—Latchem, R. L. (L.)
Waterloo—Hoffmann, A. A. (L.)
West Point—Dierker, F. H. (L.)

KANSAS

Caldwell—McKinnon, J. C. (L.)
Delphas—Settle, J. A. (C.)
Hays—Anders, P. C. (L.)
Meriden—Taylor, R. A. (L.)
Osawatomie — Robinson, P. W. (C.)
Ottawa—Shiras, H. H. (L.)

KENTUCKY

Covington—Eckman, W. G. (L.)
Hanson—Morton, C. R. (L.)
Hillsboro—Rawlings, H. F. (L.)
Horse Cave—Edwards, F. (L.)
Littrell—Webb, J. R. (L.)
Louisville—Brennan, J. A. O. (C.)
Coolidge, W. L. (C.)
McCown, N. C. (L.)
Lucas—York, J. W. (L.)
Paducah—Pulliam, S. B. (C.)
Waverly—Neary, B. J. (C.)

LOUISIANA

Monroe—Gladden, A. H. (C.)
New Orleans—Clark, S. M. D. (M.)
Hayes, W. M. (L.)
Holloway, L. W. (L.)
Johnson, W. M. (L.)
Newhauser, M. A. (C.)
Roeling, G. F. (L.)
Shreveport—Rougon, I. B. (L.)

MAINE

Caribou—Thomas, C. F. (L.)
Damariscotta — Sherman, W. H. (L.)
Lake View—Bundy, H. C. (L.)
Lewiston—Morin, R. J. (L.)
Portland—Little, A. H. (C.)

MARYLAND

Baltimore—Bloodgood, J. C. (M.)
Breeding, E. G. (C.)
Fisher, W. A. (L. C.)
Johnson, H. H. (L.)
Thayer, W. S. (B. G.)
Wheeler, E. M. (L.)
Young, H. H. (Col.)
Cantonville—Baetjer, F. H. (M.)
Crownsville—Lewis, N. D. C. (L.)

MASSACHUSETTS

Atlantic—Sweeney, M. T. (L.)
Boston—Akerley, A. W. K. (C.)
Hyde, H. V. (L.)
Malone, C. (C.)
Parker, W. S. (M.)
Peabody, F. W. (M.)
Riley, C. A. (C.)
Stone, J. S. (M.)
Streeter, E. C. (C.)
Fall River—Jackson, J. P. (L.)
Framingham—Regan, E. F. (L.)
Haverhill—Chaput, L. R. (L.)
Hyannis—Chase, P. P. (C.)
Harris, C. E. (C.)
Lowell—Sumner, H. H. (C.)
North Abington—Wheatley, F. G. (M.)
Shelburne Falls—Upton, C. L. (C.)
Springfield—Tracy, J. M. (C.)
Waltham—Curtin, J. J. (L.)
Whitman—Pulsifer, W. H. (L.)
Worcester — MacIntyre, W. A. (L.)
McMahon, W. E. R. (L.)
Simmons, H. L. (L.)

MICHIGAN

Albion—Hafford, G. C. (M.)
Ann Arbor—Brownell, M. E. (L.)
Kingery, L. B. (L.)
Columbiaville—Chapin, C. D. (C.)
Detroit—Newitt, A. W. (L.)
Ohrt, H. F. (L.)
Evart—Hoverter, J. W. (L.)
Flint—Cook, H. (L.)
Oxford—Gibson, L. E. (L.)
Pontiac—Bachelder, F. S. (C.)
Saginaw—Crane, B. F. A. (C.)
Vicksburg—Coller, F. S. (L.)
Wakefield—Crosby, T. S. (C.)

MINNESOTA

Adrian—Arnold, E. W. (L.)
Delano—Lares, B. V. (C.)
Duluth—Grawn, F. A. (C.)
Johnson, J. V. (C.)
Ely—Ayres, G. T. (C.)
Hills—Engstrom, F. A. (C.)
Mankato—Wohlrabe, A. A. (L.)
Minneapolis—Benson, G. E. (C.)
Johann, A. E. (L.)
Watson—Gilkey, S. E. (C.)

MISSISSIPPI

Biloxi—Ballar, J. C. (M.)
Bude—Warren, G. T. (L.)
Cleveland—Sparman, A. A. (C.)
Crowder—Mann, J. M. (L.)
Jackson—Plunkett, B. J. (C.)
Mount Olive—White, J. P. (L.)
Scoaba—Mooney, J. B. (C.)
Tupelo—Carruth, R. W. (L.)

MISSOURI

Ashley—Hereford, R. G. (L.)
Breckenridge—Chaffin, W. L. (L.)
Cardwell—Birchett, J. G. (C.)
Dearborn—Durham, S. L. (L.)
Fulton—McCall, G. D. (C.)
Houston—Blankenship, E. P. (C.)
Joplin—King, W. R. (L.)
Kansas City—Dawson, L. V. (L.)
Haggman, C. V. (C.)
Smith, J. H. (C.)
Swanson, J. T. (L.)
Liberty—Major, R. H. (C.)
Princeton—Powell, B. S. (L.)
Sedalia—Meyers, H. A. (L.)
St. Louis—Brennan, J. W. L. (L.) (L.)
Fay, H. W. (L.)
Goldberg, D. D. (L.)
Meyer, W. F. (L.)
Murphy, F. T. (Col.)
Proetz, A. W. (C.)
Schreiber, L. W. (L.)
Steffenville—Holt, S. W. (C.)
Tarkio—Benham, C. E. (L.)
Trenton—West, W. E. (L.)
Warrensburg—Parker, H. F. (L.)
Webb City—Dumbauld, B. A. (C.)
West Alton—Pennington, G. R. (L.)

MONTANA

Butte—Traner, E. W. (L.)
Kalispell—Greusel, C. N. (C.)
Moccasin—Estabrook, W. E. (L.)

NEBRASKA

Alliance—Copsey, H. A. (C.)
Aurora—Hustead, C. D. (L.)
Benkelman—Picken, E. A. (L.)
Falls City—Cowan, S. D. (L.)
Fremont—Rathbun, G. H. (C.)
Lincoln—Crutcher, W. H. (L.)
Omaha—Cutter, I. S. (C.)
Schuyler—Schnetzky, O. P. (L.)
Springfield—Kieck, E. G. (L.)

NEW HAMPSHIRE

Hempstead—Lake, E. E. (L.)
Manchester—Foster, G. S. (C.)
Nashua—Brownrigg, A. E. (M.)
Peterboro—Foster, F. B. (C.)

NEW JERSEY

Boonton—Arbuckle, H. (C.)
Bound Brook—Leahy, J. T. (L.)
Butler—Thorne, W. P. (L.)
Dover—Ackermann, E. (C.)
Gloucester City—Beek, J. A. (L.)
Jersey City—Rosenstein, J. L. (L.)
Newark—Buermann, W. (C.)
Gennell, E. (L.)
Orange—Von Hofe, F. H. (C.)
Passaic—Joseph, M. (L.)
Perth Amboy—Fithian, G. W. (C.)
Princeton—Paton, S. (M.)
West Hoboken—Pellarin, J. D. (L.) (L.)

NEW MEXICO

Albuquerque—Sheridan, W. M. (L.)
Clovis—Dillon, F. A. (C.)
Dexter—Hubbard, E. J. (L.)

NEW YORK

Albany—Elting, A. W. (L. C.)
Jenkins, T. W. (C.)
Wansboro, W. J. (C.)
Alfred—Ayars, E. W. (C.)
Brockport—Mann, H. J. (C.)
Brooklyn—Greenberg, L. (L.)
Herrman, W. G. (L.)
Jennings, F. B. (C.)
Lerner, J. G. (L.)
Madden, W. L. (L.)
Marinaro, F. X. (L.)
O'Loughlin, J. J. (L.)
Reitz, G. B. (C.)
Buffalo—Goodale, W. S. (M.)
Lormor, E. H. (L.)
Canandaigua—Armstrong, A. W. (C.)
Elmhurst—Combes, A. C. (L.)
Franklinville—Hammond, H. W. (L.)
Hamilton—Beebe, L. C. (C.)
Kingston—Mahen, B. W. (C.)
Manhasset—Niesley, C. M. (C.)
Newark—Morrissey, J. A. (L.)
New York—Avery, O. T. (C.)
Binderman, S. A. (L.)
Brady, T. A. (L.)
Busby, A. H. (M.)
Cohn, A. E. (L. C.)
Collins, J. (M.)
Connell, K. A. (M.)
Corbin, R. A. (L.)
Draper, G. (L. C.)
Foratz, C. E. (L.)
Horowicz, B. S. (C.)
Joyce, E. C. (C.)
Lintz, J. (L.)
Lothringer, D. (C.)
McConnell, R. H. (M.)
Meylackson, S. L. (C.)
Michie, O. C. (L.)
Miller, W. C. (M.)
Moore, A. H. (C.)
Peck, C. H. (Col.)
Pool, E. H. (L. C.)
Quinn, A. G. (C.)
Trattner, S. (L.)
Unger, A. S. (L.)
Watkins, J. T. (L.)
Yampolsky, J. (L.)
Northport—Delaney, W. J. (L.)
Ossining—Glueck, B. (C.)
Ozone Park—Howard, J. G. (C.)
Rochester—Brown, R. J. (L.)
Cook, E. B. (L.)
Davidson, S. C. (L.)
Palmer, M. B. (C.)
Schenectady—Reed, F. C. (C.)
Setauket—Russell, I. J. (L.)
Skaneateles—Hall, E. P. (C.)
Staten Island—MacGuire, D. P. (L.)
Syracuse—Moore, B. S. (C.)
Walton—Gladstone, [illegible] R. (L.)
[illegible] H. P. (L.)
[illegible] J. S. (C.)

NORTH CAROLINA

Gatesville—Rawls, J. L. (L.)
Greensboro—Banner, C. W. (C.)
Greenville—Greene, J. C. (L.)
Lenoir—Wilson, C. L. (L.)
Pinnacle—Bernard, H. (L.)
Sylva—Candler, C. Z. (C.)

NORTH DAKOTA

Fargo—Oftedal, S. (C.)

OHIO

Athens—Sprague, J. R. (L.)
Bellaire—Ring, P. L. (L.)
Bryan—Replogle, M. V. (C.)
Cambridge—Miller, O. F. (L.)
Canton—Rice, H. A. (C.)
Centerburg—Phillips, W. O. (C.)
Cincinnati—Cole, A. P. (C.)
Friedlander, A. (M.)
Hulick, T. (L.)
Willis, B. C. (C.)
Cleveland—Dunlap, A. M. (L.)
Monihan, J. R. (L.)
Norrick, J. H. (L.)
Shube, H. (L.)
Cleveland Heights—Crile, G. W. (Col.)
Columbus—Freeman, A. W. (M.)
Hamilton, C. S. (M.)
Hays, S. B. (L.)
Defiance—Winn, G. E. (C.)
Dover—Keller, W. R. (L.)
Fredericktown—Cole, R. E. (L.)
Greenville—Husted, E. G. (L.)
Guysville—Harper, E. D. (C.)
Johnstown—Burner, G. W. (C.)
Kenton—Fox, D. C. (L.)
Latty—Mouser, A. H. (C.)
Logan—Lyon, C. C. (L.)
Marietta—McCowan, J. A. (L.)
Middletown—Reed, R. W. (C.)
Shipe, W. T. (C.)
Silver, H. (L.)
New Athens—Holliday, E. G. (L.)
Sherwood—Conley, F. W. (L.)
Springfield—Rodebaugh, G. C. (L.)
Toledo—Davis, J. R. (L.)
Kahn, D. (L.)
LaSalle, J. J. (C.)
Rhonehouse, W. L. (L.)
Willoughby, L. A. (C.)

OKLAHOMA

Alva—Fewkes, J. M. (L.)
Enid—McKee, E. N. (L.)
Erick—McCreery, R. C. (C.)
Gould—Husband, W. G. (C.)
Granite—Nunnery, T. J. (L.)
Hallett—Calhoun, R. E. (L.)
Hugo—Askew, E. R. (L.)
Wolfe, R. (L.)
Kinta—Johnson, E. (L.)
Millerton—Moseley, F. (L.)
Pauls Valley—Shannon, J. B. (L.)
Temple—Halsted, A. B. (L.)
Tulsa—Springer, M. P. (L.)
Trainor, W. J. (L.)

OREGON

Amity—Wood, R. L. (L.)
Eugene—Scaiefe, B. F. (C.)
Maupin—Elwood, J. L. (L.)
Vale—Brown, F. J. (L.)

PENNSYLVANIA

[illegible] A. S. (C.)
[illegible] H. (C.)
[illegible] F. (C.)
[illegible] T. H. (L.)
Freeland—Redelin, A. A. (L.)
Hoboken—Foster, J. L. (L.)
Kulpmont—Cooner, C. C. (C.)
Lewisburg—Thornton, H. R. (L.)
Lititz—Hertz, J. L. (C.)
Lock Haven—Mervine, G. D. (C.)
Markleton—Smeltz, G. W. (C.)
McVeyton—Steele, B. P. (C.)
Meadow Lands—Gormley, J. A. (L.)
Miner Mills—Hislop, J. J. (C.)
Minersville—McGurl, T. J. (L.)
Norristown—McCracken, J. A. (C.)
Philadelphia—Birney, H. H. (C.)
Chandlee, W. H. (C.)
Ersner, M. S. (L.)
Goodman, E. H. (M.)
Harte, R. H. (Col.)
Hughes, C. R. (L.)
Hunter, R. J. (M.)
Manges, W. F. (L. C.)
Martin, E. (L. C.)
McLean, J. D. (M.)
Miller, C. S. (L.)
Mintzer, G. S. (M.)
Mohler, H. K. (C.)
Russell, E. D. (L.)
Watt, R. (C.)
Whiteway, H. M. (C.)
Philipsburg—Thompson, H. H. (L.)
Pittsburgh—Barkley, A. W. (L.)
Boyce, J. W. (M.)
Bremer, F. W. (L.)
Flinn, J. E. (L.)
Norton, F. B. (C.)
Rudolph, F. W. (L.)
Stevenson, A. M. (C.)
Weinberg, M. H. (L.)
Wildhaber, W. T. (L.)
Reading—Dreibelbis, S. L. (L.)
Erdman, T. F. (L.)
Levan, G. K. (L.)
Winston, G. I. (L.)
Sayre—Murray, A. H. (L.)
West Chester—Palmer, C. R. (C.)
Willow Grove—Dunn, A. W. (C.)
York—Wentz, P. N. (L.)

RHODE ISLAND

Providence—Rushton, P. H. (L.)

SOUTH CAROLINA

Bamberg—Stuckey, H. J. (L.)
Greenwood—Routh, F. M. (L.)
Turner, W. P., Jr. (L.)
Starr—Land, J. N. (L.)

SOUTH DAKOTA

Irene—Beall, L. F. (L.)
Oldham—Garrison, J. F. (C.)

TENNESSEE

Elizabethton—Campbell, G. E.(C.)
Memphis—Malone, W. B. (M.)
Nashville — Haggard, W. D. (L. C).
Whitfield, T. A. (L.)
Pinson—Westover, H. M. (L.)

TEXAS

De Kalb—Crew, C. S. (L.)
Eastland—Roaten, S. P. (L.)
El Campo—Kopecky, J. (L.)
Fort Bliss—Hunter, W. B. (C.)
Fort Worth—Terry, H. H. (L.)
Graham—Duncan, R. A. (L.)
Hillsboro—Smith, B. C. (L.)
Houston—Dickson, T. A. (L.)
Israel, S. P. (L.)
White, A. E. (C.)
Itasca—Hester, J. B. (L.)
Kinsley—Stoltenberg, W. P. (L.)
Maxwell—Nichols, C. (L.)
Mineral Wells—Davis, E. A. (C.)
Nacogdoches—Sweatland, A. E. (C.)
Robey—Reeves, D. H. (L.)
San Antonio—Roberts, R. A. (L.)
Weinfield, L. M. (C.)
Sinton—Elkins, H. T. (L.)
Waco—Lanham, H. M. (C.)

UTAH

Milford—Swanson, C. F. (L.)
Salt Lake City—Skidmore, E. L. (L.)
Woolsey, R. T. (L.)

VIRGINIA

Bon Air—McCluer, B. B. (L.)
Brownsburg—Henkel, H. S. (L.)
Manassas—Merchant, W. F. (C.)
Richmond—Anderson, P. V. (C.)
Roanoke—Slicer, W. S. (L.)

WASHINGTON

Centralia—Lawrence, E. J. (L.)
Monroe—Soll, C. H. (M.)
North Yakima—Weir, C. H. (L.)
Seattle—Everly, W. (C.)
Spokane—Farlye, R. H. (L.)
Vancouver—Lieser, H. C. (M.)

WEST VIRGINIA

Charleston—Godbey, M. V. (C.)
Elm Grove—Houston, J. M. (C.)
Richwood—Wright, E. B. (C.)

WISCONSIN

Berlin—Scott, B. E. (C.)
Bowler—Pfeil, R. C. (L.)
Fennimore—Bailey, M. A. (C.)
Kewaskum—Bendixen, B. O. (L.)
Lake Mills—Leicht, P. (L.)
Milwaukee—Baur, E. F. (C.)
Ruhland, G. C. (M.)
Mount Calvary—Baasen, J. M. (L.) (L).
[illegible], J. F. (L.)
[illegible], C. G. (L.)

WYOMING

Diamondville—Van Cott, E. R. (L.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Newport News, Va., from Camp Jackson, Capt. J. SCHWARZ, Mobile.

Arkansas

To Camp Abraham Eustis, Va., as camp sanitary inspector, from Camp MacArthur, Major W. H. ABINGTON, Beebe.

To Camp Kearney, Calif., from Hoboken, Capt. D. GANN, Jr., Little Rock.

To Camp Pike, Ark., base hospital, from Camp Hancock, Capt. W. D. JUDKINS, Little Rock.

To Fort Bayard, N. M., from San Antonio, Major P. C. WILLIAMS, Texarkana.

To Whipple Barracks, Ariz., from San Antonio, Lieut. H. M. STRACHAN, Hot Springs.

California

To Alcatraz, Calif., *to examine the command* for nervous and mental diseases, from Camp Kearney, Capt. E. S. BLAIR, San Bernardino.

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Major R. C. HOWE, San Francisco.

To Camp Beauregard, La., base hospital, from Detroit, Capt. M. P. BURNHAM, San Francisco.

To Camp Knox, Ky., as camp surgeon, from Camp Lee, Lieut.-Col. F. TOWNSEND, San Francisco.

To Camp Lee, Va., base hospital, from Camp Dix, Capt. E. J. BEST, San Francisco.

To Denver, Colo., from Fort Oglethorpe, Lieut. G. A. CLAPP, Lindsay.

To Fort Riley, base hospital, from Camp Cody, Capt. I. W. JONES, Los Angeles.

To Hoboken, N. J., from Camp Dix, Major C. D. LOCKWOOD, Pasadena.

To San Francisco, Calif., Letterman General Hospital, from Camp Dix, Major E. C. MOORE, Los Angeles. From Vancouver Barracks, Majors W. L. DUNN, Oakland; G. R. HUBBELL, Capt. C. F. GRIFFIN, San Francisco.

To report to the commanding general, Southern Department, from Fort Bliss, Lieut. C. C. OWEN, San Bernardino. Western Department, from Camp Fremont, Capt. W. O. HOWELL, San Francisco; from San Francisco, Capt. J. L. WALLER, San Francisco.

To Washington, D. C., Surgeon-General's Office, Major W. B. BOWMAN, Los Angeles.

Colorado

To Camp Sevier, S. C., base hospital, from Camp Wadsworth, Capt. P. HILLKOWITZ, Denver.

To Cooperstown, N. Y., from Millington, Tenn., Lieut. J. B. SALBERG, Boulder.

To Denver, Colo., from Camp Cody, Lieut. T. A. DAVIS, Portland; from Camp Devens, Capt. C. J. LATTA, Sterling.

To Fort Logan, Colo., from Camp Fremont, Capt. L. HOUGH, Denver.

Connecticut

To Army Medical School for instruction, from Camp Dix, Lieut.-Col. G. W. HAWLEY, Bridgeport.

To Camp Logan, Texas, base hospital, from Camp MacArthur, Lieut. R. F. SCHOLL, New Haven.

To Fort McHenry, Md., from Camp Dix, Major W. F. VERDI, New Haven.

To Washington, D. C., Surgeon-General's Office, from Camp Gordon, Capt. R. W. LOWE, Ridgefield.

District of Columbia

To Fort Douglas, Utah, from Fort Oglethorpe, Capt. J. P. KERBY, Washington.

To Fort Sill, Okla., base hospital, from Camp Sevier, Major FRANK LEECH, Washington.

To Hoboken, N. J., from Camp Dix, Capt. H. HUME, Washington.

To Oteen, N. C., from the Surgeon-General's Office, Col. W. J. L. LYSTER.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Col. A. C. CHRISTIE, Washington.

Florida

To report to the commanding general, Philippine Department, from Camp Meigs, Major M. L. CRUM, Bowling Green.

Georgia

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. R. B. HARDING.

To Camp McClellan, Ala., from Fort Oglethorpe, Major H. R. McKELLAR.

To Lakewood, N. J., from Fort Oglethorpe, Lieuts. A. R. THOMAS, Jr., C. H. SULLIVAN, Zebulon.

To New Haven, Conn., for instruction, from Fort Oglethorpe, Lieut. J. B. ANDERSON.

The following order has been revoked: *To Camp Zachary Taylor, Ky.*, Capt. J. M. SIGMAN; Macon.

Illinois

To Army Medical School, from Fort Oglethorpe, Capt. J. W. HALL, Lieut. J. V. ANDERSON, Chicago.

To Biltmore, N. C., from Camp Wadsworth, Capt. W. W. MELOY, Chicago.

To Camp Grant, Ill., from the Surgeon-General's Office, Lieut. T. J. LAMPING, Chicago.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Des Moines, Lieut. J. P. GRAF, Chicago.

To Camp Knox, Ky., from Camp Dix, Major F. P. AULD, Shelbyville.

To Camp Meade, Md., base hospital, from Camp Dix, Lieut. B. N. NOVY, Chicago.

To Camp Sevier, S. C., from Camp Bragg, Capt. G. U. LIPSHULCH, Chicago.

To Camp Upton, N. Y., *to examine the troops* for nervous and mental diseases, from Camp Dix, Lieut. L. C. KNIGHT, Carthage.

To Chicago, Ill., from Camp Grant, Capt. J. H. BRYANT, Galesburg.

To Detroit, Mich., from Camp Grant, Lieut. P. S. SCHOLES, Canton.

To Fort Benjamin Harrison, from Camp Custer, Capt. L. H. DAGGETT, Chicago.

To Fort McPherson, Ga., from Camp Wheeler, Lieut. J. W. MILLER, Chicago.

To Fort Oglethorpe, from Wichita Falls, Capt. R. H. KUHNS, Chicago.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Capt. H. S. NORTON, Chicago.

To Fort Sheridan, Ill., from Camp Dix, Major W. R. CUBBINS, Chicago; from Governors Island, Lieut. H. S. BLESSE, South Chicago; from Hoboken, Lieut. E. C. PRATT, Alton; from the Surgeon-General's Office, Lieut.-Col. D. D. LEWIS, Chicago.

To Fort Snelling, Minn., from Camp Joseph E. Johnston, Capt. L. A. BEATON, Chicago; from West Baden, Capt. F. J. LESEMAN, Chicago.

To Hoboken, N. J., from Camp Dix, Majors R. H. DAVIES, G. F. DICK, N. M. PERCY, Chicago.

To Newport News, Va., from Fort Oglethorpe, Lieut. J. A. ABEL, Chicago.

To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion *to Detroit*, from Camp Upton, Lieut. E. F. Fox, Chicago. On completion *to his proper station*, from Camp Custer, Capt. P. M. OLIVER, Chicago.

The following order has been revoked: *To Camp Crane, Pa.*, Lieut. E. A. CORCORAN, Chicago.

Indiana

To Camp Zachary Taylor, Ky., base hospital, from the Surgeon-General's Office, Capt. E. B. MUHFORD, Indianapolis.

To Detroit, Mich., from Camp Gordon, Lieut. D. T. MILLER, Terre Haute.

To Fort Sheridan, Ill., from Camp Pike, Lieut. T. J. O'NEILL, Anderson.

To Hoboken, N. J., from Camp Dix, Capt. C. E. BARCUS, Indianapolis; from Camp Meade, Lieut. L. H. STAFFORD, Indianapolis.

Iowa

To Camp Hancock, Ga., from the Surgeon-General's Office, Capt. G. H. STEELE, Belmont.

To Fort Des Moines, Iowa, from the Surgeon-General's Office, Major T. A. BURCHAM, Des Moines.

To Fort Logan, Colo., from Camp Grant, Lieut. S. D. JONES, Fort Dodge.

To Fort Riley, base hospital, from Camp Cody, Lieut. G. E. HERMENCE, Marshalltown; from Fort Oglethorpe, Major W. E. DRAPER, Manilla; from Topeka, Lieut. C. D. SHELTON, Bloomfield.

Kansas

To Camp Devens, Mass., as commanding officer, base hospital, from Fort Riley, Lieut.-Col. K. W. KINARD.

To Camp Lee, Va., from Fort Riley, Lieut.-Col. G. W. COOK.

To Camp Zachary Taylor, Ky., as camp surgeon, from Fort Riley, Col. H. F. PIPES.

To Fort Leavenworth, Kan., from Fort Snelling, Capt. W. F. NIENSTADT, Hartford.

To Fort Sam Houston, Texas, from Camp MacArthur, Lieut. D. L. HEIDRICK, Welda.

To Hoboken, N. J., from Camp Dix, Capt. T. RICHMOND, Kansas City.

To Hot Springs, Ark., from Camp McClellan, Capt. F. T. JOHNSTON, Jr., Elmdale.

Kentucky

To Camp Grant, Ill., from Fort Riley, Lieut. E. H. FISCHER, Louisville.

To Columbus Barracks, Ohio, from Camp Travis, Lieut. J. E. EDWARDS, Lancaster.

To Fort Benjamin Harrison, from Camp Sevier, Lieut. W. E. RENDER, Lakeland.

To Hoboken, N. J., from Camp Dix, Lieut. W. B. HUGHES, Newport.

To Richmond, Va., from Hampton, Va., Lieut. C. P. HARROD, South Park.

Louisiana

To Camp Dodge, Iowa, base hospital, from Vancouver Barracks, Lieut. K. W. KINNEY, New Orleans.

To Fort Sam Houston, Texas, from Camp MacArthur, Lieut. R. L. ARMSTRONG, Pleasant Hill.

Maine

To Boston, Mass., from Camp Devens, Capt. L. L. POWELL, Saco.

To Camp Devens, Mass., base hospital, from Fort Des Moines, Capt. W. B. MOULTON, Portland.

To Walter Reed General Hospital, for instruction, from Newport News, Capt. L. B. HAYDEN, Livermore Falls.

Maryland

To Army Medical School, from Camp Dix, Major H. B. MONTGOMERY, Lanham.

To Camp Gordon, Ga., base hospital, from Camp Meade, Major N. M. OWENSBY, Baltimore.

To Fort McHenry, Md., from Camp Dix, Capt. S. M. CONE, Lieut. F. L. JENNINGS, Baltimore.

To Philadelphia, Pa., from Camp Gorden, Capt. T. P. SPRUNT, Baltimore; from Fort McPherson, Lieut. R. V. HOFFMAN, Baltimore.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major C. BAGLEY, JR., Baltimore.

The following order has been revoked: *To Fort Ontario, N. Y.,* from Camp Greene, Capt. A. M. STEVENS, Easton.

Massachusetts

To Army Medical School, from Otisville, N. Y., Capt. G. L. SCHADT, Springfield.

To Boston, Mass., from Camp Dix, Lieut.-Col. G. S. DERBY, Boston; from Fort McHenry, Lieut. W. A. BISHOP, North Abington.

To Camp Devens, Mass., base hospital, from Fort McPherson, Capt. H. J. FITZSIMMONS, Boston.

To Camp Lee, Va., as orthopedic surgeon, Lieut. M. E. SIMMONS, Boston.

To Camp Meade, Md., base hospital, from Camp Lee, Capt. E. V. HARDWICK, Dorchester. *To examine the command* for nervous and mental diseases, from Plattsburg Barracks, Capt. R. A. GREENE, Palmer.

To East Norfolk, Mass., from Camp Logan, Capt. R. G. PROVOST, New Bedford.

To Fort McHenry, Md., from Camp Sheridan,, Capt. T. E. CAULFIELD, Woburn.

To Fort McPherson, Ga., from Camp Meade, Major H. L. CONNER, Haverhill.

To Fort Porter, N. Y., from Camp A. A. Humphreys, Lieut. M. E. COONEY, Northampton; from Camp Devens, Capt. C. J. HUYCK, West Brookfield.

To Hoboken, N. J., from Camp Dix, Major J. J. THOMAS, Boston.

To Pittsburgh, Pa., from Walter Reed General Hospital, Capt. A. U. F. CLARK, Westboro.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Devens, Lieut. D. S. ADAMS, Boston.

To Washington, D. C., from Camp Dix, Lieut.-Col. A. GREENWOOD, Boston. Surgeon-General's Office, from Camp Dix, Major S. W. ELLSWORTH, Boston.

The following order has been revoked: *To Fort Ontario, N. Y.,* from Camp Greene, Lieut. C. F. SHARRY, Somerville.

Michigan

To Camp Custer, Mich., base hospital, from Camp Dix, Lieut.-Col. P. M. HICKEY, Detroit.

To Camp Dix, N. J., base hospital, from Walter Reed General Hospital, Lieut. E. J. AGNELLY, Detroit.

To Camp Upton, N. Y., from Camp Dix, Capts. J. F. BREAKEY, Ann Arbor; F. H. SMITH, Lieut. A. B. PERSLEY, Detroit. Base hospital, from Camp Lee, Lieut. L. D. STERN, Kalamazoo.

To Cape May, N. J., from Biltmore, N. C., Capt. J. E. J. KING, Detroit.

To Detroit, Mich., from Camp Custer, Major M. W. CLIFT, Flint; from Camp Zachary Taylor, Lieut. A. V. MURTHA, Flint.

To Fort Benjamin Harrison, from Indianapolis, Lieut. H. I. POST, Ypsilanti.

To Fort Sheridan, Ill., from Camp Dix, Capt. J. R. CORYELL, Grand Rapids.

To Hot Springs, Ark., from Fort Des Moines, Capt. J. D. STEWART, Hartford.

Minnesota

To Camp Dodge Iowa, base hospital. from Fort Snelling, Lieut. C. A. TRAEGER, Faribault.

To Camp Grant, Ill., from Camp Lee, Lieut. J. R. WOOD, Hallock.

To Carlisle, Pa., from Fort Riley, Lieut. B. A. BAIRD, Rochester.

To Chicago, Ill., from Camp Grant, Capt. I. SIVERTSON, Minneapolis. On completion *to Washington, D. C.,* Surgeon-General's Office, from Rochester, Col. W. J. MAYO, Rochester.

To Fort Snelling, Minn., from Camp Dix, Lieut. J. H. COSGROVE, Duluth.

To Otisville, N. Y., from Fort Riley, Lieut. R. A. HENNESSEY, Rochester.

To Scituate, Mass., from Camp Dix, Capt. W. M. BOOTHBY, Rochester.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major H. E. ROBERTSON, Minneapolis; Capt. A. B. MOORE, Rochester.

Mississippi

To Camp Knox, Ky., from Lake Charles, Capt. T. F. WORTHINGTON, Forte.

To Philadelphia, Pa., from Camp Gordon, Capt. T. P. BOSWELL, New Albany.

Missouri

To Camp Meade, Md., from Camp Dix, Major S. I. SCHWAB, St. Louis.

To Camp Sherman, Ohio, as tuberculosis examiner, from Camp Gordon, Lieut. M. O. COOMBS, Joplin.

To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. J. F. HARDESTY, Winfield. *To examine the command* for cardiovascular diseases, from Lakewood, Lieut. H. A. ELKINS, Hardin.

To Fort Riley, from Plattsburg Barracks, Lieut. W. G. HOGAN, Neck City.

To Fort Rodman, Mass., from Camp Greene, Capt. D. WYATT, Mineola.

To Garden City, N. Y., from Camp Dix, Major A. W. McALESTER, Kansas City.

To Jefferson Barracks, Mo., from Northeastern Department, Lieut. S. B. BUCK, Anderson; from West Baden, Lieut. T. E. LILLY, Kansas City.

To Philadelphia, Pa., from Camp Zachary Taylor, Major E. G. MARK, Kansas City.

To Pittsburgh, Pa., from Camp Dodge, Lieut. G. W. GAINES, Rayville; Capt. W. T. HIRSCHI, St. Louis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Jefferson Barracks,* from Camp Pike, Lieut. H. J. BLOUNT, Potosi.

Montana

To Biltmore, N. C., from Camp Meade, Lieut. G. A. LEWIS, Roundup.

To Camp Meade, Md., base hospital, from Army Medical School, Capt. A. G. FULLER, Missoula.

Nebraska

To Camp Dodge, Iowa, base hospital, from Fort Snelling, Lieut. R. L. IVINS, Crawford.

To Chicago, Ill., from Camp Grant, Capt. C. L. FAHNESTOCK, McCook.

To El Paso, Texas, from Camp Owen Bierne, Lieut. C. W. PARKS, Lincoln.

To Fort Sheridan, Ill., from Camp Custer, Capt. D. C. HILTON, Lincoln.

To Jefferson Barracks, Mo., from St. Louis, Capt. F. C. GENUNG, Wausa.

To Oteen, N. C., from Camp Joseph E. Johnston, Capt. J. F. ALLEN, Omaha.

New Hampshire

The following order has been revoked: *To Scituate, Mass.,* from Penniman, Va., Capt. W. P. CRAIG, Walpole.

New Jersey

To Colonia, N. J., from Camp Sherman, Lieut. H. B. EPSTEIN, Newark.

To Fort McHenry, Md., from Rochester, Capt. C. B. LUFBURROW, Plainfield.

To Hoboken, N. J., from Camp Dix, Capt. S. L. SALASIN, Atlantic City.

To Hot Springs, Ark., from Camp Dix, Col. R. M. CULLER.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Gordon, Capt. D. E. WARREN, Passaic.

To Whipple Barracks, Ariz., from San Antonio, Capt. W. H. HAINES, Audubon.

New Mexico

To Denver, Colo., from Fort Bayard, Lieut. A. D. LAZENBY.

New York

To Army Medical School, from Fort Oglethorpe, Capt. J. C. TEAS, Flushing. For instruction, Major R. R. FITCH, Rochester; from Camp Dix, Major W. W. PLUMMER, Buffalo.

To Camp Custer, Mich., from Camp Dix, Capt. B. A. HALL, Oxford.

To Camp Dix, N. J., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. EBERLE, Brooklyn.

To Camp Grant, Ill., from Camp Dodge, Capt. T. A. ROGERS, Plattsburg.

To Camp Knox, Ky., from Camp Greene, Major R. B. BONTECCOU, Ithaca.

To Camp Meade, Md., base hospital, from Camp Lee, Lieut. F. E. DUBOIS, New York.

To Camp Pike, Ark., from Camp Bowie, Lieut. F. N. POTTS, Buffalo.

To Camp Sherman, Ohio, from Camp Gordon, Lieut. A. TOWBIN, New York.

To Camp Travis, Texas, from Fort Sam Houston, Lieut. A. RAVICH, Brooklyn.

To Camp Upton, N. Y., base hospital, from Camp Abraham Eustis, Lieut. H. C. DORSEY, New York.

To Camp Zachary Taylor, Ky., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. C. HERRING, New York.

To Carlisle, Pa., from Lakewood, Lieut. F. W. BISHOP, New York.

To Colonia, N. J., from Camp Dix, Lieut. S. W. HAUSMAN, Ogdenburg; from Fort Oglethorpe, Lieut. J. G. HART, Rochester.

To Columbia Barracks, Ohio, from Denver, Capt. H. A. CRAIG, Staten Island.

To Eastview, N. Y., from Camp Devens, Lieut. V. A. NARDIELLO, New York.

To Fort McHenry, Md., from Mineola, Capt. J. M. WHEELER, New York.

To Fort Ontario, N. Y., from Camp Dodge, Capt. B. R. NAIRN, Buffalo.

To Fort Snelling, Minn., from Camp Dix, Major E. L. HANES, Rochester; from Camp Dodge, Lieut. B. M. KULLY, New York.

To Garden City, N. Y., from Camp Dix, Lieut. D. D. STOWELL, New York.

To Hoboken, N. J., from Camp Dix, Major W. D. ALSEVER, Syracuse; Capt. A. F. WRIGHT, Wayne; Lieut. J. J. KILCOURSE, Jamaica; from Washington, Capt. A. W. KLEIN, New York.

To Newport News, Va., from Fort Oglethorpe, Lieut. C. B. GIBSON, New York.

To Otisville, N. Y., from Syracuse, Lieut. B. R. KELLY, New York.

To Philadelphia, Pa., from Camp Gorden, Lieut. W. H. CONKLIN, New York; from Camp Wheeler, Capt. C. W. FIELD, New York.

To Plattsburg Barracks, N. Y., from Camp Joseph E. Johnston, Capt. L. A. WING, New York.

To report to the commanding general, Western Department, from Camp Fremont, Lieut. P. E. McCHESNEY, New York.

To Rockefeller Institute for instruction in the treatment of infected wounds, from Camp Greene, Lieut. C. W. DEMONG, Syracuse. On completion *to his proper station,* from Camp Devens, Lieut. L. A. WYLIE, Harrison.

To Syracuse, N. Y., from Camp McClellan, Lieut. L. L. SHAPIRO, New York.

To Walter Reed General Hospital, from Camp Meade, Lieut. H. E. WHEELOCK, Fredonia; from *Fort Oglethorpe,* Capt. G. V. JOHNSON, Schenectady.

To Washington, D. C., Col. H. H. M. LYLE, New York; from Camp Dix, Col. J. F. McKERNON, *New York.* Surgeon-General's Office, from Camp Dix, Lieut.-Cols. R. DERBY, W. J. ELSER, New York; from Plattsburg *Barracks,* Lieut.-Col. T. D. WOODSON.

To Williamsbridge, N. Y., from Camp Dix, Major L. G. COLE, New York.

The following order has been revoked: *To Boston, Mass.,* from Camp Crane, Lieut. G. G. DAVIS, Arcade.

North Carolina

To Camp Gordon, Ga., base hospital, Lieut.-Col. J. W. LONG, Greensboro.

To Camp Travis, Texas, as tuberculosis examiner, *from* Camp Logan, Lieut. W. T. LONG, Roxboro.

To East Potomac Barracks, D. C., from Camp Lee, Lieut. W. C. PETERSON, Wilmington.

To Markleton, Pa., from Camp Sheridan, Lieut. M. R. GIBSON, Raleigh.

To Oteen, N. C., from Washington, D. C., Lieut. W. C. PETERSON, Wilmington.

North Dakota

To Fort Keogh, Mont., from Camp Lewis, Capt. A. M. FISHER, Bismarck.

To Fort Snelling, Minn., from Fort Riley, Lieut. W. C. AYLEN, Mandan.

Ohio

To Army Medical School, from Camp *Dix,* Lieut. C. W. MAXSON, Steubenville.

To Camp Meade, Md., base hospital, from Camp Dix, Capt. N. L. ZINNER, Cleveland.

To Colonia, N. J., from Army Medical School, Capt. L. B. ZINTSMASTER, Massillon.

To Dallas, Texas, Love Field, from Austin, Lieut. F. S. VAN DYKE, Columbus.

To Fort Snelling, Minn., from Camp Dodge, Lieut. C. G. McPHERSON, Xenia.

To Hoboken, N. J., from Camp Dix, Lieut.-Col. C. R. CLARK, Youngstown.

To Philadelphia, Pa., from Camp Gordon, Lieut. A. H. BERR, Cleveland.

Oklahoma

To Army Medical School, from Camp Dix, Lieut. C. C. SHAW, McAlester.

To Fort Sam Houston, Texas, from Camp MacArthur, Lieuts. I. C. MORRIS, Cushing; P. C. CHRISTIAN, Oklahoma City.

To Hot Springs, Ark., from Camp *Abraham* Eustis, Major R. L. KURTZ, Nowata.

Oregon

To San Francisco, Calif., Letterman General Hospital, from Camp Dix, Major T. M. JOYCE, *Portland;* from *Philadelphia,* Lieut. A. O. WALLER, Eugene.

Pennsylvania

To Army Medical School, from Fort Oglethorpe, Lieut. C. W. WAKEFIELD, Pittsburgh.

To Camp A. A. Humphreys, Va., from Camp Jackson, *Major* A. E. DAVIS, Scranton.

To Camp Abraham Eustis, Va., from Camp Dix, Capt. W. J. DOYLE, Wilkes-Barre.

To Camp Dix, N. J., base hospital, from Fort Sheridan, Capt. S. J. *REPPLIER, Philadelphia.*

To *Camp Jackson, S. C.,* from Camp Crane, Major F. R. SHUTE, Philadelphia.

To Camp Lee, Va., from Hampton, Va., Lieut. W. S. TAYLOR, Harrisburg.

To Camp Sherman, Ohio, base hospital, from Camp Dix, Major J. D. ELLIOTT, Philadelphia.

To Camp Zachary Taylor, Ky., base hospital, from Army Medical School, Capt. L. H. MAYER, Jr., Johnstown.

To Denver, Colo., from Fort Sill, Capt. H. O. MATTER, Pittsburgh.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. W. C. CHANEY, *Philadelphia.*

To Fort McHenry, Md., from Boston, Lieut. E. H. THOMPSON, *Philadelphia.*

To Hoboken, N. J., from Camp Dix, Lieut.-Cols. W. H. WALSH, Philadelphia; J. D. HEARD, Pittsburgh; from Camp Meade, Lieut. G. W. A. HESS, Philadelphia; from Long Beach, Lieut. D. L. SIMON, Pittsburgh.

To Lakewood, N. J., from Camp Upton, Lieut. L. N. GAY, Shamokin; from Camp Zachary Taylor, Lieut. T. M. MABON, Pittsburgh.

To Philadelphia, Pa., from Camp Dix, Capt. J. E. ELLINGER, Philadelphia; from Camp Gordon, Capt. J. BEATTIE, Lebanon; from Fort McPherson, Lieut. W. C. ELY, Philadelphia.

To Pittsburgh, Pa., from Carlisle, Pa., Lieut. J. W. FISHER, Pittsburgh.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Majors H. W. CATTELL, Philadelphia; R. E. DAVISON, Pittsburgh.

Philippine Islands

To San Francisco, Calif., Capt. A. P. GOOFF, Manila; from Philippine *Department,* Major J. M. PRATT.

Rhode Island

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Dix, Lieut. E. M. PORTER, Providence.

South Carolina

To Fort McPherson, Ga., from Fort *Oglethorpe,* Lieut. J. D. GUESS, Charleston.

To Lakewood, N. J., from Washington, Capt. T. C. GALLOWAY, Columbus.

Tennessee

To Camp Devens, Mass., base hospital, from Camp Hancock, Capt. R. L. SANDERS, Memphis.

To Camp Gordon, Ga., as tuberculosis examiner, from Camp Logan, Lieut. M. L. CONNELL, Nashville.

To Camp Upton, N. Y., from Camp Dix, Lieut. C. O. BAILEY, Memphis. Base hospital, *from* Camp Dix, Capt. J. W. MORRIS, Sommerville.

To Fort Logan H. Roots, Ark., from Camp Pike, *Lieut.* O. P. WALKER, Memphis.

To Montgomery, Ala., from Americus, Ga., Lieut. E. C. SEALE, Nashville.

To Oteen, N. C., from Camp Gordon, Capt. O. S. DEATHRIDGE, Nashville.

Texas

To Army Medical School for instruction, from Camp Dix, Major C. S. VENABLE, San Antonio.

To Camp Beauregard, La., from Fort Oglethorpe, Lieut. J. W. McKEE, Houston.

To Camp Kearney, Calif., to examine the command for cardiovascular diseases, from Camp Lewis, Lieut. R. L. ROSS, *San Antonio.*

To Camp Logan, Texas, base hospital, from Camp Upton, Lieut. R. A. THARP, Austin.

To Camp Meade, Md., base *hospital,* from Boston, Lieut. H. K. MORRISON, Houston. *To examine the troops* for cardiovascular diseases, from Fort Oglethorpe, Lieut. E. TOOMIN, Waco.

To Camp Travis, Texas, base hospital, from Camp Dix, Capt. H. M. BUSH, San Antonio.

To Fort San Houston, Texas, from Camp John Wise, Capt. C. F. HAYES, Fort *Worth; from* Camp MacArthur, Lieuts. W. J. MASTERS, Knox City; J. E. HAMMOND, *Munday;* H. A. WINTER, Port Arthur. Base hospital, from Camp Logan, *Capt.* A. S. *LOVE,* Ballinger.

To Jackson Barracks, La., from Camp Travis, Lieut. B. H. PALMER.

To Newport News, Va., from Camp Abraham Eustis, Capt. W. V. PRUETT, *Brownsville.*

Utah

To Fort Douglas, Utah, from Camp Lewis, Capt. C. M. BENEDICT, Salt Lake City; from Logan, Utah, Major W. CHRISTOPHERSON, Salt Lake City.

The following order has been revoked: *To Fort Des Moines, Iowa,* from Fort Riley, Lieut. F. F. HATCH, Salt Lake City.

Vermont

To Camp Upton, N. Y., from Detroit, Capt. N. J. DELEHANTY, Rutland.

To Newport News, Va., from Boston, Lieut. H. L. PIERCE, Swanton.

To Philadelphia, Pa., from Camp Dix, Lieut. R. L. MAYNARD, Burlington.

Virginia

To Newport News, Va., from Camp Bragg, Capt. C. T. PEIRCE, Litwalton.

To Philadelphia, Pa., from Camp Devens, Major H. FLETCHER, Fairfax.

Washington

To Camp A. A. Humphreys, Va., as camp sanitary inspector, from Fort Riley, Capt. W. H. AXTELL, *Bellingham.*

To Camp Lee, Va., from Fort Oglethorpe, Lieut. C. R. GLENN, Kelso.

To Fort Caswell, N. C., from Camp MacArthur, Capt. A. E. HENBY, Seattle.

To Garden City, N. Y., from Camp Dix, Major R. W. PERRY, Seattle.

To Hoboken, N. J., from Camp Dix, Capt. W. W. HARRINGTON, Spokane.

To San Francisco, Calif., from Vancouver Barracks, Major R. A. ALLEN, Tacoma; Capts. E. W. COX, Monroe; H. B. CLOUGH Tenasket.

Wisconsin

To Camp Dodge, Iowa, base hospital, from Fort Riley, Major W. T. CLARK, Fort Atkinson. *To examine the command* for cardiovascular diseases, from Lakewood, Lieut. B. F. KOCH, Wauwatosa.

To Camp Grant, Ill., from Camp Lewis, Lieut. L. M. PEARSON, Tomahawk; from Newport News, Va., Lieut. J. F. SCHNEIDER, Oshkosh.

To Fort Des Moines, Iowa, from Camp Upton, Lieut. A. YAFFE, Milwaukee.

To Fort Sam Houston, Texas, from San Antonio, Capt. C. H. MEYST, Burlington.

To Fort Sheridan, from Camp Cody, Capt. C. O. DECKER, Crandon.

To Fort Snelling, Minn., from Fort Oglethorpe, Capt. R. W. JONES, Wausaw.

To Oteen, N. C., for instruction, from Camp Joseph E. *Johnston,* Capt. B. F. HOYT, South Kaukauna.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Custer, Lieut. I. E. LEVITAS, Green Bay.

Wyoming

To Fort D. A. Russell, Wyo., from Camp Dodge, Capt. L. P. DESMOND, Cheyenne.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg.-General L. L. LUMSDEN, relieved from duty at St. Louis, Mo., and continued on present duty as chief of the division of Hygiene and Sanitation, Emergency Fleet Corporation, Philadelphia, Pa.

Senior Surg. G. M. MAGRUDER, relieved at *Portland,* Oregon, and Tacoma, Wash., proceed to Memphis, Tenn, for duty at the *Marine* Hospital.

Senior Surg. A. J. LANZA, relieved at Pittsburgh, Pa., continued on duty at Washington, D. C., in connection with the Division of Industrial Hygiene and Medicine.

Surgeon FRIENCH SIMPSON, orders to *Fort Stanton revoked.* Proceed to San Francisco Quarantine Station for duty.

Passed Asst. Surg. L. O. WELDON, relieved at Lawton, *Okla.,* detailed for duty with the Division of Venereal Diseases, *Washington,* D. C.

Passed Asst. Surg. J. G. WILSON, proceed to Chicago, Ill., for duty *on board of inspection* of the Speedway Hospital.

Passed Asst. Surg. O. H. COX, relieved at Jacksonville, Fla., proceed to Pensacola, Fla., for duty in connection with extracantonment sanitation.

Asst. Surg. L. L. WILLIAMS, JR., proceed to Wilmington, N. C., for conference on antimalarial measures.

Acting Asst. Surg. R. D. CLIPPINGER, proceed to Harrisburg, Pa., for duty in connection with influenza control.

Acting Asst. Surg. E. B. LIDDELL, proceed to Houston, Texas, for duty in clinic.

Acting Asst. Surg. E. W. SCOTT, proceed to Kansas City, Mo., for conference concerning influenza control.

Acting Asst. Surg. M. E. STEINBERG, proceed to Hansford, W. Va., to investigate outbreak of influenza.

Scient. Asst. M. B. HULL, proceed to New Haven, Conn., for intensive studies of industrial sanitation.

Scient. Asst. LLOYD R. JONES, relieved at Charlotte, N. C., proceed to Fayetteville, N. C., for duty in connection with extracantonment sanitation.

Scient. Asst. H. B. LARNER, proceed to Cullman, Alabama, for duty in outbreak of Smallpox.

Scient. Asst. JOHN B. WEBB, relieved at Waco, Texas, proceed to Portsmouth, Va., for duty in extracantonment sanitation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Irregular Practitioner Convicted.—A drugless healer by the name of A. M. Brevick of Ketchikan, it is reported, was arrested recently by the Board of Medical Examiners of Alaska and, January 27, pleaded guilty of practicing medicine without license, and was fined $50 and costs.

DISTRICT OF COLUMBIA

Personal.—Dr. Tom A. Williams, Washington, has returned from France after an absence of eighteen months, during which time he acted as medical adviser to the bureau of medical research of the American Red Cross.

ILLINOIS

Personal.—THE JOURNAL has received word of the arrival and active work of the American Red Cross Commission to Greece, at Athens, headed by Deputy Commissioner Major Carl E. Black.

Restoration of License Refused.—The Department of Registration and Education of the State of Illinois, February 1, gave a rehearing to Dr. Frank J. Oshay, Ladd, whose license to practice medicine and surgery in Illinois was revoked, Dec. 9, 1918; but after rehearing confirmed its previous action.

Medical Examiners Reappointed.—Mr. Francis W. Shepardson, director of the Department of Registration and Education, has reappointed, as the medical examining committee for 1919, Drs. John A. Robinson, William L. Noble and Guy M. Cushing, Chicago; Dr. Lewis C. Taylor, Springfield, and Dr. Jonathan L. Wiggins, East St. Louis.

Chicago

Institute of Medicine Meeting.—The Institute of Medicine of Chicago will have a symposium on influenza, February 21, at the City Club, at 8 o'clock. The subjects announced are: "Epidemiology," Prof. E. O. Jordan; "Bacteriology," Dr. David J. Davis; "Pathologic Anatomy," Dr. Edwin R. LeCount; "In Military Camps," Dr. Walter W. Hamburger; "Clinical," Dr. Solomon Strouse, and "Public Health," Dr. Heman Spalding.

Personal.—Dr. Joseph C. Beck, who has been in the charge of the Czecho-Slovac Hospital at Convak, France, has been transferred to Prague, Bohemia, where he is working in reconstructive and plastic surgery of the head and neck.——John G. O'Malley, Capt., M. C., U. S. Army, has returned after more than three years service abroad, first with the Royal Army Medical Corps, and later in the Medical Corps, U. S. Army.——George C. Tallerday, Capt., M. C., U. S. Army, who has been with the American Army of Occupation in Coblenz, has returned from abroad.

INDIANA

Communicable Diseases.—It is reported that there are now twenty-three cases of smallpox in Elkhart, and the situation is showing no improvement.——Diphtheria is reported to be prevalent in Columbia City.

Personal.—Dr. Zera M. Beaman, for several years secretary of the board of health of North Manchester, has resigned.——Dr. Lyman K. Gould has been appointed consulting surgeon to the Wabash Railroad at Fort Wayne, to succeed Dr. Edward J. McOscar, deceased.——Dr. John W. Bilderback has been appointed health officer of New Haven.

IOWA

Personal.—Dr. George E. Decker, Davenport, has been elected a director of the Davenport Commercial Club.

Hospital Notes.—The new Children's Hospital, which is being constructed in Iowa City at a cost of $150,000, is nearing completion. This building will be given over entirely to the care of crippled children.——The State Hospital for Epileptics, Woodward, was recently dedicated with Governor Harding and State Red Cross Director Kepford as principal speakers.

KANSAS

Appropriation Asked.—The state board of administration has been asked for an appropriation of $200,000 for a medical school at Rosedale.

Personal.—Dr. James S. Rushton, Morrill, was operated on recently for appendicitis in a base hospital at Kelly Field, San Antonio, Texas, and is reported to be doing well.

Memorial Hospital Suggested.—As a tribute to the memory of Dr. William Thomas Fitzsimmons, the first American medical officer to be killed during the war, the Kansas State Medical Society proposes to enlarge the Bell Hospital, Rosedale, and rechristen it the Fitzsimmons Memorial Hospital.

MARYLAND

Personal.—Seven Baltimore physicians and surgeons who have been overseas as members of the Johns Hopkins and the University Hospital units arrived in New York, February 1. All were ordered to report at Camp Dix, N. Y., where they will be held pending further orders. The officers are: Majors Walter A. Baetjer, George J. Heuer, Charles Bagley, Jr., Cary B. Gamble, Jr., Capt. William H. Smith and Lieuts. Henry Shaw and R. G. Coblentz.

Convention of Health Boards.—Ways and means of protecting the public health and building up a stronger generation were discussed at a convention of the health boards of Maryland, called by the state board of health, and held at the Medical and Chirurgical Faculty Building, Baltimore, February 14 and 15. Dr. John A. Farrell of the International Health Board, and director of its work in the United States, delivered a lecture at the opening session on "The Organization of Public Health Work in the Counties." The lecture was preceded by papers by the chiefs of divisions of the state department of health giving accounts of the organizations: bacteriology, Dr. William Royal Stokes; vital statistics, Dr. Frederick V. Beitler; sanitary engineering, Robert B. Morse; chemistry, Dr. Wyatt W. Randall; food and drugs, Dr. F. C. Blanck, and communicable diseases, Dr. C. Hampson Jones. Tuberculosis was a most important subject under discussion at the afternoon session and W. H. Sawyer, Major, Medical Corps, U. S. Army, discussed prevention and control of social diseases, and was followed by Dr. Allan W. Freeman, health officer of Ohio, who spoke on "Local Public Health Administration in the States." The School of Hygiene at the Johns Hopkins University was also visited. At the evening session Dr. William H. Welch, president of the state board of health and director of the Johns Hopkins School of Hygiene, addressed the conference, and was followed by Allan J. McLaughlin, assistant surgeon-general, U. S. P. H. S., who delivered an address on "Public Health Administration and Organization."

NEW JERSEY

Health Officials Elect Officers.—At the annual conference of New Jersey Health Officials held in Trenton, January 25, Henry V. Ammerman, Kearny, was elected president, Dr. Talbot Reed, Atlantic City, vice president, and R. Chandler, Plainfield, was reelected secretary and treasurer.

NEW YORK

Bill to Legitimatize War Babies.—A bill introduced into the New York Legislature, February 4, by Mrs. Mary M. Lilly, representing the Seventh Assembly District of Manhattan, and advocated by Judge Robert J. Wilkin of the Children's Court of New York City, provides for the legitimatization of so-called war babies, which, according to reports, are more numerous than is imagined. The bill provides that the identity of the father must be established *in* a court of law, and is so framed that designing women cannot resort to the law for purposes of blackmail.

Physicians for Rural Communities.—The state department of health asserts that many rural communities in New York state have been without physicians because of death, permanent military appointments or other causes. As a result of letters received from a number of such communities, the state department of health has undertaken to put the authorities in such places in touch with physicians desiring rural locations. This has been accomplished by advertisements in the medical journals and newspaper publicity. Replies have been received from ninety-six physicians located in twenty different states, and names have been sent to twenty-four communities.

New York City

Deaths from Violence.—Approximately 5,200 persons met violent deaths in New York City during 1918, according to the annual report of the chief medical examiner (coroner). Of these 772 were suicide, 273 were homicide. A slight decrease as compared with 1917.

Personal.—Dr. S. Dana Hubbard has been placed temporarily in charge of the division of industrial hygiene by the health commissioner.——Alexis Carrel, Major, M. C., U. S. Army, who has been serving with the French army in the Montdidier section, returned on the Transatlantique steamer *La Lorraine*, January 28, and began to resume his work at the Rockefeller institution for medical research.

The Health Department and the Drug Evil.—In addressing the Federation of Women's Clubs, February 7, Health Commissioner Dr. Royal S. Copeland stated that there are at present 200,000 drug addicts in the city of New York and that there are 2,600 retail drug stores. One drug store sold 585 ounces of narcotics in December. Dr. Copeland states that the health department is going to establish drug stations and check up narcotic sales.

Maternity Center Association Meets.—At the annual meeting of this organization, held recently, it was announced that the association had established twenty-two clinics and had at present 7,400 expectant mothers under its care. Dr. Henry Dwight Chapin, in an address before the association, stated that 700 women died in childbirth in this city last year. The association adopted resolutions endorsing the health insurance bill now before the legislature.

Motor Fatalities Break Record.—The report of the National Highways Protective Society for the month of January shows that forty-nine persons were killed by automobiles in New York City during the month, eight were killed by surface cars, and one by a wagon, making fifty-eight in all, which is the highest number of fatalities yet recorded for the month of January. The figures for the year 1918 show an increase of fatalities from automobiles of 30 per cent. over 1917, with 1,189 killed, as against 837 for 1917. Basing the value of a human life on the estimate of the federal government, which insures a soldier's life at $10,000, the economic loss represented by these accidental deaths is $11,890,000.

Medical Examiner Versus Coroner.—The annual report of the chief medical examiner, Dr. Charles Norris, for the first year of his office which succeeded that of the coroners' system has just been made public. It amply demonstrates the advantages of this system over the old coroners' system. The report shows that, whereas the budget for the year of the coroners' system (1917) was $158,000, that for the medical examiner for the first year was $92,000, the latter sum including laboratory work of the greatest value. The report reveals that the number of homicides during 1918 was 273, against 283 in 1917. There was an increase of more than fifty in deaths from accidental poisoning. In all probability this is due to the more scientific examination to determine the cause of death. The report discloses that the method of suicide most frequently used is by illuminating gas, 311 persons in the greater city having chosen that method during the past year. The second in frequency on the suicide list was jumping from a building, 119 having sought death in this way. Shooting was the means of self-inflicted death in ninety-two instances and hanging in eighty-eight. Of 125 accidental deaths, forty were due to morphin, heroin, opium and cocain. There were in all 526 accidental deaths due to illuminating gas, an increase of twenty-five over the previous years. The medical examiner's office has under consideration recommendations for having commercial poisons, such as those for the extermination of rats and insects, put up in packages that show their deadly nature, since many persons died during the year because they mistakenly took what they thought was medicine from packages containing pure poison.

OHIO

Cleveland Physicians Prosecuted.—The Ohio State Medical Board reports that Dr. John L. Hoyer of Cleveland, whose license was revoked in 1899 *for felony*, was recently convicted in the police court and sentenced to thirty days in jail for the illegal practice of medicine.——Dr. Jay Boyd is under arrest for illegal practice. Dr. Boyd's Ohio license was revoked, July, 1899, because of extravagant advertising.——Dr. George C. Halliday, claiming to be a graduate of Harvard, was arrested for the illegal practice of medicine and was released on the bond of $1,000. He has left the state, forfeiting his bond.

Licenses Revoked.—At its meeting, January 29, the Ohio State Medical Board revoked the license of Dr. Levi White Hunt of Toledo for alleged extravagant advertising having a tendency to deceive and defraud the public. Dr. Hunt has appealed the case to the Common Pleas Court.——At a special meeting, January 21, the board revoked the license of William H. Stukenholt of Cleveland for having association with and lending his name to an illegal practitioner of medicine.——January 21, the board also revoked the license of Herbert E. Edwards of Cleveland. Dr. Edwards had previously been convicted in the federal court for misbranding pharmaceutical preparations and had been sentenced for eighteen months in the federal prison at Atlanta. This decision was but recently confirmed by the supreme court.——The license of Charles B. Weedman of Cleveland was also revoked, January 21, for gross immorality—conviction of the illegal sale of narcotics—and lending his name or having connection with an illegal practitioner of medicine. The evidence showed Dr. Weedman had received $40 per week from the "United Doctors" which investigation showed was owned by Dr. John P. Furno, Detroit, who was not licensed to practice in Ohio.

PENNSYLVANIA

Philadelphia

Women's Hospital Drive.—The women campaigners who are seeking to raise $75,000 for the West Philadelphia Hospital for Women had only $15,000 to gain to reach their goal on February 8, the last day of the campaign.

Personal.—Dr. Richard P. Smith has been named assistant medical inspector of the board of health.——Dr. Mulford K. Fisher, who was taken ill with croupous pneumonia while attending the convention of roentgenologists at Atlantic City, N. J., is now convalescent.

Friends Plan Hospital.—A hospital under the Society of Friends, provided for in the will of the Jeans who died twelve years ago, may soon be built as there is $2,000,000 available for this purpose. The proposed hospital will be for the treatment of cancerous and nervous diseases and will be located within 20 miles of Philadelphia.

Medical Inspectors Resign.—Forty medical inspectors of the public schools resigned in a body, February 7, resignation to become effective March 1, because they are unwilling to longer work for $600 a year. The director of health and charities has asked the inspectors to delay action pending action by the board, but since they had resigned he could do nothing else but appoint others in their places.

College of Physicians.—At the stated meeting of the College of Physicians of Philadelphia, held February 5, the scientific portion of the meeting was devoted to papers on "Concussions and Injuries of the Eye and Warfare," by Dr. George E. deSchweinitz; "Reeducation of the Blind," by James Bordley, Jr., Lieut.-Col., M. C., U. S. Army; "Research Work on the Problems of Aviation," by Walter B. Lancaster, Major, M. C., U. S. Army, and the "Army School of Ophthalmology," by Meyer Wiener, Major, M. C., U. S. Army.

Officers Elected.—At the stated meeting of the Obstetrical Society of Philadelphia, held at the College of Physicians, February 16, the following officers were elected: president, F. Hurst Maier; vice presidents, Stephen E. Tracy and Alfred Heineberg; secretary, Edward A. Schumann; secretary pro tem, Charles S. Barnes, and treasurer, William E. Parke.——The Philadelphia Clinical Association, February 3, elected the following officers: president, William Duffield Robinson; vice president, Edward J. Moore; secretary, Charles S. Barnes, and treasurer, William McKeage.

CANADA

Influenza.—With thirty deaths reported to date, the number of new cases of influenza in the province of Quebec in 100 of the 2,500 municipalities, is put down at 2,000. Dr. Elzear Pelletier, provincial officer of health of Quebec, states that the present is a mild epidemic compared with that of last fall. The schools which escaped the epidemic last fall seem now to be suffering more. The first epidemic in 1918 caused 13,880 deaths, and 530,700 cases of the influenza.

Disciplinary Power Asked.—The Ontario Medical Council will seek power from the Ontario legislature to discipline its members when such action is necessary in connection with breaches of the Ontario Temperance Act. During the last few months there have been several convictions of doctors for violations of the Ontario Temperance Act; and the executives of the council have felt these members should be dealt with, but doubt as to the authority of the council prevented action.

Municipalities to Be Liable.—The liberal caucus of the Quebec legislative body discussed recently the contributions by municipalities to hospitals and other institutions for patients from their districts treated in the hospitals of Montreal and other big cities of the province. As a result a bill will be introduced in the legislature which will make those municipalities liable for a portion of the cost of treatment, in the same manner as they now pay for the maintenance and treatment of patients in the hospitals for the insane in that province.

Osteopaths in Quebec.—The osteopaths have a bill before the Quebec legislature. Dr. A. Edmond Burrows, Montreal, has a letter in the public press stating that the bill is a challenge to the educative system of Canadian universities. *He claims* that the opposition to the bill from physicians and surgeons is in order to protect the welfare of the people, and to maintain the high standard of the medical profession in Canada. In his opinion any trained masseur or masseuse is capable of administering the treatment termed "*osteopathic*," but it requires a trained physician to prescribe when such treatment is beneficial or when it would be harmful. The passing of such a law would open a back door for the admittance into the medical profession of unqualified persons.

Personal.—Capt. Robert D. Moyle of the Second Field Ambulance of the C. A. M. C. has been awarded the Military Cross "for conspicuous courage and devotion to duty." He is a graduate in arts of McMaster University, Toronto, and of Johns Hopkins University in medicine.——Dr. Robert J. Manion, M.P., Fort William, Ont., will second the address in reply to the speech from the throne in the Canadian House of Commons when the session opens, February 20.——Dr. L. de Lotbiniere, Montreal, was the guest of honor at a banquet held in that city, February 5. There were 200 French and English citizens present, including many medical men. The occasion was the appointment of Dr. Lotbiniere to the deanship of the Medical Faculty of Laval University, in succession to the late Dr. Emmanuel P. Lachapelle. Dr. Rodolphe Boulet, Montreal, was in the chair.

Social Hygiene Laws for Canada.—During the week ended February 8, a conference was held at Ottawa, called at the instance of Sir Thomas White, the acting prime minister of Canada, to consider laws for the prevention and treatment of the venereal diseases in Canada. Among others present were Major-Gen. John T. Fotheringham, C.M.G., Ottawa; Dr. J. Alexander Hutchison, Montreal, president of the Canadian Public Health Association; Dr. Maurice M. Seymour, chief officer of health of *Regina, Saskatchewan*; Dr. Gordon Bell, health officer of Winnipeg, Manit.; Col. John W. S. McCullough, Toronto, and Dr. George G. Melvin, medical officer of health, New Brunswick. A department of health for the dominion; compulsory notification and compulsory treatment of the venereal diseases in every *province*; penalties for evading the laws; prevention of quack advertising, treatment and medicines; cancellation of the monopoly in the *special* products for syphilis, and the granting of permission to conduct such manufacture under the special supervision of the board of health of each province, and the rendering of financial assistance by the dominion government to the provinces in fighting the venereal diseases, were the chief topics of discussion.

GENERAL

Public Health Service Appeals to Physicians for Cooperation in Fight Against Venereal Diseases.—Physicians are receiving notices from the public health service relative to the prevention and treatment of venereal disease. In order to secure cooperation from the medical profession those interested are asked to return a postal card on which they give assurance of cooperation ir [illegible] ses, securing prompt treatment for them . [illegible] literature relative to the spread of venereal infection.

Hope for Blind.—"Victory Over Blindness" was the title of an address by Sir Arthur Pearson, the blind founder and director of St. Dunstan's Hotel for Blinded Soldiers, London, England, before a mass meeting at the Century Theater in New York City, February 4. Sir Arthur described his work in restoring blinded British soldiers to self-support. Lieut.-Col. James Bordley, Baltimore, in charge of work for blinded American soldiers and sailors and director of the Red Cross Institute for the Blind, told of the work being done at Evergreen, Baltimore, for men of the American Expeditionary Force who lost their sight in action. The meeting was presided over by Douglas C. McMurtrie, director of the Red Cross Institute for Crippled and Disabled Men, under the auspices of which organization the meeting was held.

Opportunities for Trained Sanitarians.—The threatened recurrence of influenza next year is causing many communities to consider the installation of well *organized* health departments. In the past, difficulty has been experienced in obtaining men well trained in medicine, epidemiologists, vital statistics, water *supply*, sewage disposal, and in every branch *of city positions*. There are now returning to the civil communities *men* who have served in the Medical Corps of the Army, who are excellently equipped for positions as health officers, laboratorians, vital statisticians, sanitary engineers, industrial hygienists, school medical inspectors, and the like. The American Public Health *Association* has established a health employment bureau at Boston to supply men for such positions. When they *return from service* they will register with the bureau, and when a request for help comes to the bureau, they will be notified and will be sent to the prospective employers. This service is rendered without pay either to the employers or applicants.

Bequests and Donations.—The following bequests and donations have recently been announced:

United Charities of Chicago, $25,000; Country Home for Convalescent Children, $7,000; Children's Memorial Hospital, Visiting Nurse Association, and Grant Hospital, each $5,000; as a nucleus for a fund to be established for a home for crippled soldiers and sailors, $100,000 by the will of Mrs. Augusta Lehmann.

Philadelphia Hospital for Cripples, $10,000, and one half of the principal of the $10,000 trust fund after the death of the niece of testatrix and payment of other bequests: Hahnemann Hospital, Philadelphia, $5,000 by the will of Mrs. Frances W. *Thorpe*.

Jewish Hospital Association, Philadelphia, $1,000 by the will of Walter E. Steppacher.

For the proposed memorial hospital at Albion, Mich., a pledge of $2,500 by Dr. Albert B. Grant, *Albion*.

Johns Hopkins Hospital, $3,500 to be known as *the Dr. John Dixon Fund*, the income to be used in promoting the comfort and welfare of the hospital nurse, and Presbyterian Eye, Ear, Nose and Throat Hospital, Baltimore, $1,500 as a tribute to the memory of Dr. John Dixon, by the will of Mrs. *Ada B. B. Dixon*.

Yale University Medical School, New *Haven, Conn.*, a donation of a fund of $80,000 to be known as the *physiologic* laboratory building fund, to be used ultimately for the construction of a physiologic laboratory and pending this the income to be used for the *benefit* of the department of *physiology* of the Yale University, Department of Medicine, by Mr. and Mrs. Howard H. Spaulding, Jr., Chicago, who gave $50,000; Mr. *Benjamin* H. *Throop*, who gave $25,000, and Mr. J. Ogden Armour, Chicago, who donated $5,000.

Hebrew Maternity Hospital, Montreal, Que., $28,905, *in* the first four days of the campaign for $50,000.

FOREIGN

Hospitable Offer of University of Bordeaux.—The authorities of the University of Bordeaux have announced that American physicians who request it will be admitted to graduate medical courses. Also that a certain number of American students will be admitted to the courses and laboratory privileges of the university. The university also expressed its desire for an interchange of professors.

Health Conditions in Germany.—The Associated Press publishes an interview with Lieut.-Col. Seale Harris, M. R. C., Birmingham, Ala., concerning a recent visit to Germany east *of the* Rhine. It is stated that the German nation is bankrupt and the people starving, the bread and *food* very poor and limited in *quantity*. Colonel Harris reports that tuberculosis is increasing and skin diseases due to lack of nourishment and the lack of soap are prevalent.

Typhus Fever.—A report from Persia states that famine and an epidemic of typhus fever exist at Tabriz, and that Gordon Paddock, American Consul at Tabriz, has appointed a relief committee to take charge of the situation.——An epidemic of typhus fever has broken out in many Russian cities. It is reported that twelve physicians and forty nurses have died in Petrograd, and that the disease is raging in Kiev and Kovel and also is prevalent among the Lithuanian soldiers.

Infant Mortality in Spain.—The *Archives de Médecine des Enfants*, Paris, relates that Dr. M. Vargas, professor of pediatrics and dean at the University of Barcelona, founded in his native town, Barbastro, with 7,000 inhabitants, an infant consultation and dispensary and milk station, or, as he called it, the Instituto Nipiologico. A Child Welfare Week was recently celebrated there, at which it was announced that the infant death rate had been reduced by 50 per cent. during the three years since the institution was founded. Dr. Vargas is director of the Spanish children's journal, the *Medicina de los Niños*, and was the leader of the delegation of Spanish physicians who recently visited France and were invited to lecture at the Faculté de médecine. The topics of the lectures delivered were "Rachitis," "Antityphoid Vaccination," and "Influenza in Spain."

Death of Spanish Physicians Visiting Prison Camps in Germany.—The *Siglo Medico* of January 4 publishes a communication from the government to the effect that according to notices received from the Spanish embassy at Berlin, all of the Spanish physicians who have been visiting the prison camps have been attacked with influenza. The strain of the continuous journeying under unfavorable conditions and the privations in food readily explain the spread of the disease, which is common in the camps, to the visitors. One of the party, Dr. F. Perez Garcia, did not wait for his complete recovery from a light attack of influenza acquired at the Hannover camp, but started out to visit the other camps. He was obliged to return after visiting the camp at Minden where he acquired a pulmonary infection to which he succumbed in six days. The other physician of the party, Dr. Valderrama, of the naval medical corps, also died after arriving in Switzerland, in consequence of influenza acquired in the course of his official trip of inspection.

Brazilian Hospital in France.—The *Paris Médical* relates that Dr. Mourier, the undersecretary of state for the army medical department, recently visited the Brazilian hospital organized in France by Dr. N. de Gouvea, chief of the Brazilian medical mission to France. Dr. Mourier was accompanied by the inspector general, Dr. Février, and the latter presented the cross of the Légion d'honneur to Dr. P. de Rico Branco, an eminent surgeon from Brazil who volunteered in August, 1914, for service in France and has been at work there constantly since. Dr. Mourier in the name of the French government expressed the gratitude of the French to the Brazilian government for its generous initiative and to the members of the mission who came to help the wounded. The mission is said by the *Annaes Paulistas* to consist of fifty physician surgeons, besides a body of students and soldiers to guard the hospital in the field of operations. The mission is under the orders of the chief command of the Brazilian military service. The hospital was to be equipped for 500 beds. There was quite a large party from S. Paulo in the mission, led by Dr. B. Montenegro, recently appointed lieutenant-colonel, and member of the editorial staff of the *Annaes Paulistas de Medicina e Cirurgia.*

CORRECTION

Michigan News.—In The Journal for January 25, it was stated under "Michigan News" that Dr. James W. Inches had been made police surgeon of Detroit. This was an error, as Dr. Inches is now commissioner of police. It was also stated that $5,000 had been requested for a new department of health building. The sum requested was $500,000.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Deaths in the Profession.—Dr. Ricardo S. Gomez, professor of anatomy at the University of Buenos Aires and chief of the women's department of the Hospital Alvear.——Dr. Elias Toro, professor of external pathology at Caracas and director of the newly founded school of pharmacy.

Reciprocity Between Mexico and Japan.—We understand from the *Revista Medica* of recent date that a treaty has been concluded between Mexico and Japan to the effect that the credentials and titles necessary for the practice of medicine in either country will be accepted in the other. It is stated that this is the only reciprocity treaty in respect to the liberal professions into which Mexico has entered as yet.

Child Welfare Congress Postponed.—The second Congreso Americano del Niño, which was to have been held at Montevideo in December, was postponed till May, 1920, on account of the problems arising from the termination of the world war and the prevailing epidemic of influenza. These rendered it impossible for the government or the profession to give this important international gathering the attention it deserved.

MEXICO LETTER

Mexico City, Feb. 2, 1919.

Echoes of the Typhus Congress

Besides the communications presented to this congress mentioned in my last letter, should be noted one presented by Dr. F. Ocaranza who, aided by Dr. J. J. Izquierdo, has been studying the behavior of the leukocytes in tabardillo, making 162 examinations of blood from nineteen typhus patients. They found constantly a polynuclear leukocytosis with hypolymphocytosis and aneosinophilia. The fever curve parallels the leukocytosis; any divergence between them is a sign of grave prognosis. Dr. Izquierdo has also studied alone the retention and elimination of chlorids in th ecourse of typhus. He reported that the chlorid content of the blood in twelve typhus patients was constantly normal. Hence he condemned the practice of saline infusion in typhus, as liable to expose the patients to the danger of edema. Dr. F. Bulman read a paper on the relations between pregnancy and tabardillo.

Smallpox

This terrible disease which unfortunately never disappears completely from our country, has appeared in the frontier state of Sonora, and in Hermosillo, the capital, there have been a number of cases. It is expected that the disease will not spread, as active measures against it have been undertaken.

Still the Influenza Epidemic

News has been received that epidemic influenza has reached Santa Rosalia in lower California, but the death rate from it has not been high.

The Agricultural College

The School of Agriculture which has been closed for some time is to open anew, Feb. 5, 1919. Its course of studies include veterinary medicine besides the courses of agriculture and agronomic engineering.

Anticruelty to Animals Societies

Societies for this purpose are being founded among the children in the schools in order to train them in consideration for animals.

Baby Show

A local newspaper, in order to stimulate breast nursing as a means to improve the race and dam the flood of infant deaths, has founded a gallery of robust breast fed infants less than 1 year old. The picture of the infants are published.

BUENOS AIRES LETTER

Buenos Aires, Dec. 29, 1918.

Sanitary Inspection Against Influenza

The disappearance of influenza at Buenos Aires and at Montevideo since the third week in November has rendered unnecessary the measures adopted by mutual agreement between the Departamento de Higiene of Argentina and that of Uruguay to check the spread of influenza. December 2, the medical examination that was enforced at the port of Buenos Aires from 7 a. m. to 10 p. m. was suppressed, and December 15 all prophylactic measures were dropped. However, the sanitary inspection was still maintained for travelers to and from the ports of Uruguay and Paraná as epidemics were known to be still prevailing in some of them. As these disappeared, all sanitary inspection was abandoned December 26.

Public Health Service in Catamarca

The recent epidemic of dysentery in the province of Catamarca rendered evident the lack of measures to combat disease in that region. The *Departamento Nacional de Higiene* now has installed a branch station there, and Dr. Otero has been placed in charge.

Dysentery at Humahuaca

When the epidemic of exanthematous typhus died out in the province of Jujuy, it was followed by an epidemic of dysentery. The provincial government has appealed for help to the national public health authorities.

Regional Arsenic Poisoning

Later investigations have rendered it evident that the zone in the province of Cordoba where chronic arsenical poisoning prevails is quite extensive. Clinical cases have been encountered and the presence of arsenic determined in a zone which commences to the south of Bell Ville and extends to north of San Francisco, the waters of the Tercero river being found to contain arsenic. Drs. F. Reichert and R. Wernicke have been studying how to purify these waters, and have succeeded in obtaining the precipitation of nearly all the arsenic and the vanadium by addition of colloidal iron hydroxid. Identical results can be obtained by adding simply salts of iron, as the waters are alkaline. The city of Bell Ville has begun tests of this procedure on a large scale, in order to decide definitely its practical importance.

Reorganization of Public Health System

Many years' experience has amply established the notorious inconveniences resulting from the continual changes in the chief officers of the Departamento de Higiene Nacional and of the Asistencia Publica of the capital. Each new chief usually makes sweeping changes in the personnel, which practice prevents obtaining competent and experienced employees. Most of the appointments are made for political reasons. The present president of the Departamento de Higiene, Dr. Capurro, has announced that he is going to reorganize the service once more. He has declared that he will soon drop eighty supernumerary employees.

University Notes

The regulation providing for an entrance examination for the Facultad de Medicina is now being combated, a petition having been presented to suppress it entirely or at least for this year. The university authorities have refused to make any concessions. The first year students have refused to take any examination in botany, and are clamoring for the suppression of this branch of study.

The Consejo of the Facultad have sent to the federal government, for appointment to the chair of clinical pediatrics, the names of Dr. M. Acuña, first choice; Dr. M. Santos, second choice, and Dr. J. Sixto, third choice. For the chair of gynecology, Dr. J. Molinari, first; Dr. J. Salvador, second, and Dr. C. Piccardo, third choice.

LONDON LETTER

London, Jan. 22, 1919.

Medical Demobilization

The question of medical demobilization has been referred to in previous letters. An elaborate scheme has now been drawn up intended to apply on personal and professional grounds to all medical officers serving temporarily with the forces. As soon as provision has been made for areas in which the medical service has been dangerously depleted, it is proposed that the demobilization of medical officers shall proceed along lines which take into account: (*a*) length of service; (*b*) age; (*c*) special personal hardships in connection with practices, and (*d*) family responsibilities. For this purpose the names of those *over the age* of 30, Nov. 11, 1918 (the date of the armistice), will be classified in the following groups: (1) those who were mobilized at the outbreak of war; (2) those who have served more than three years; (3) those who have served between two and three years; (4) those who have served between one and two years, and (5) those who have served less than one year. Each group will be divided into four subgroups arranged according to age. Priority of demobilization will be determined according to "*points*," thus awarded according to length of service and age:

(*a*) Men mobilized at the outbreak of the war: over 45, 30 points; between 40 and 45, 29 points; between 35 and 40, 28 points; between 30 and 35, 27 points.

(*b*) Men with more than three years' service: over 45, 26 points; between 40 and 45, 25 points; between 35 and 40, 24 points; between 30 and 35, 23 points.

(*c*) Men with *more than* two years' service: over 45, 22 points; between 40 and 45, 21 points; between 35 and 40, 20 points; between 30 and 35, 19 points.

(*d*) Men with *one year's* service: over 45, 18 points; between 40 and 45, 17 points; between 35 and 40, 16 points; between 30 and 35, 15 points.

(*e*) Men with less than one year's service: over 45, 14 points; between 40 and 45, 13 points; between 35 and 40, 12 points; between 30 and 35, 11 points.

Points will be thus added or subtracted in respect of the modifying conditions named:

1. If in whole-time salaried post, subtract 6 points.
2. If with no paid appointment or national health insurance work, add 3 points.
3. If in single-handed practice, add 3 points.
4. If all members of partnership are on service, and no member of the partnership is otherwise entitled to more than 30 points, add in case of one partner 4 points.
5. If married, add 4 points.
6. If with children or other dependents add 1 point for each dependent (excluding wife) up to a maximum of 4 points.

Additional points may be awarded in respect of financial or other circumstances of an exceptional character which justify a claim to a higher order of priority than that determined by the foregoing provisions. The order of priority of men under 30 will be according to age, the older before the younger.

Medical Members in the New Parliament

The result of the general election as regards the medical candidates is not very satisfactory. Members of the profession were candidates in thirty-two constituencies, but only nine were returned. This, however, is an increase on the number (five) in the last parliament. Among the successful candidates are Dr. Christopher Addison (minister of reconstruction in the last parliament) and Sir Auckland Geddes (minister of national service), whose careers were described in The Journal, Dec. 21, 1918, p. 2090; Sir Watson Cheyne and Sir William Whitla (professor of materia medica, Belfast University), and Sir Robert Woods (professor of laryngology and otology, Trinity College, Dublin). Excepting Sir Auckland Geddes and Dr. Addison, all these eminent members of the profession were returned for university seats. One leading man, Sir Wilmot Herringham, physician to St. Bartholomew's Hospital and major-general in the Army Medical Service, was a defeated candidate for the London University. In Ireland three physicians were returned, in all cases Sinn Feiners (Republicans). All the medical candidates came forward on general political grounds; and only in the cases of the universities, in which there is a considerable medical vote, do they represent medical opinion in any special sense.

The Harvard Unit in London

The executive committee of the interallied fellowship of medicine (described in these columns, January 25) entertained at dinner the members of the Harvard Surgical Unit, which is paying a short visit to London on its way home from France. Sir William Osler, chairman of the executive committee, presided. The toast of the Harvard Unit was proposed by Dr. Norman Moore, president of the Royal College of Physicians. Lieut.-Col. Hugh Cabot, in responding, said that the unit was the outcome of a grave decision and one that gave general satisfaction at a time when there was an endeavor to maintain the neutrality of the United States. Throughout the first year or more of the life of the unit it was a succession of changes. The original conception was that it should be started by Harvard and followed in succession by other universities. It was not until December, 1916, that the corporation of the university undertook the enlistment of officers for the duration of the war, and that the unit came to stand on a firm foundation. It was only since he had been closely associated with Englishmen, Irishmen, Scotsmen and Australians that he had come really to know that we were, in fact, all of the same blood. Superficial differences tended to hold them apart, unless they realized that these difficulties were superficial. These superficial differences were largely mannerisms and methods of expression. He had been impressed by the fact that when Americans and British worked together they came to admire and understand each other's qualities. He felt very strongly that they must continue not simply to associate together but to bring these peoples together until they had finally locked them in a union which, as he believed, could alone be expected to maintain the peace of the world. He could not follow the eminent thinkers who believed in the League of Nations. The only league of nations in which he could really believe was a true union and understanding between all the branches of the Anglo-Saxon people. He was satisfied that that would be a basis on which might be constructed a league of nations that would do something to maintain the peace of the world.

Lieut.-Col. E. F. Harrison, C.M.G.

Lieut.-Col. E. F. Harrison, to whose investigations the success of the British defense against the poisonous gases of the Germans was mainly due, has died from influenza at the age of 49. His premature end was largely due to being worn out by his labors. Before the war he was one of the leading scientific pharmacists in England. He was a member of the board of examiners of the Pharmaceutical Society and for a time head of the analytic department of Burroughs Wellcome & Co. He performed for the *British Medical Journal* a series of analyses of proprietary articles which were published under the title "Secret Remedies," a book which created a considerable sensation and produced much resentment among nostrum proprietors. Soon after the Germans made their first gas attack he joined the Sportsmen's Battalion of the British Army. He was moved to enlist at what was an advanced age for such a purpose by the detestation he felt for the prostitution of chemical science by the enemy in the use of poison gas. He felt that the Allies must reply in kind and that his vast chemical knowledge should be placed at the service of the War Office. After his period of training he transferred to the Royal Engineers in a response to a call for chemists, and soon afterward was made a lieutenant. He worked first at the Royal Army Medical College, where the problem of protecting our troops against gas was being attacked. He labored strenuously in providing a protection, not against one gas but against a large number, as he recognized that this fiendish method of warfare had great possibilities. The tests involved the wearing of the protective device in an atmosphere of gas as long as he could stand it, and his health suffered in the continual exposures. But he was undeterred, and up to the end of his career was eager to try on himself any new apparatus or the effect of a new gas when wearing a protector. He devised the first box respirator that was supplied to the troops. The mode of protection involved first the working out of a method—for making permanganate granules. Then it was necessary to discover the best method of preparing charcoal, the absorptive powers of which may vary twenty-fold, according to the method of preparation. These substances were at first made by private firms, but their resources not proving adequate for the enormous demands, he organized large factories where the process of manufacture was carried out under his direction. The magnitude of his task will be realized from the fact that in addition to 15,000 work people employed in the antigas department, 120,000 were engaged in the manufacture of box respirators. The factories supplied nearly 50 millions of respirators. His organization was so good that he never failed to respond when there was an increased demand, however sudden and unexpected. When the Americans failed to turn out as they expected a sufficient number of respirators in time for their troops, he was able to supply all deficiencies. For the excellence of his work he was promoted to Major in April, 1916, and Lieutenant-Colonel in January, 1917. A short time before he died he was appointed controller of the Chemical Warfare Department.

Another analytic chemist, Capt. Alexander Gemmell, who worked under Lieutenant-Colonel Harrison, has also died. His end is also attributed to experiments to insure protection of our troops against poison gas.

THE PROJECTED MINISTRY OF HEALTH IN GREAT BRITAIN

(*Special correspondence*)

London, Feb. 1, 1919.

American physicians will follow with unusual interest the agitation that has been aroused in England in relation to the possible establishment of a ministry of health. Many of the questions that have been raised for debate or consideration are identical with the issues involved in the creation of a comparable office in our own government, so that the public interest of medicine and hygiene might be represented by a responsible member of the cabinet. There can be no doubt that all thinking persons are having their attention turned to the important subject of the health of the nation. The war has taught the lessons of having a citizenship that is "fit" for the work of the world at all times. Enthusiastic groups of both the medical profession and the laity are interested in all sorts of ways—practical, philanthropic, scientific, sociological—in a considerable diversity of matters that are in essence a part of the health scheme. The daily press is an index of part of the agitation and performance in respect to such subjects as child welfare, maternal care, the campaign against venereal disease, industrial hygiene, tuberculosis and various epidemic diseases that form local or even national menaces. Naturally it has seemed timely to ascertain whether some correlation of effort is not advisable. Two generations ago the primary impulse to accomplish something for people's well-being was one of charity. Today a more pragmatic aim underlies much of the interest in health conservation; it is a motive of concern for national vitality, for the elimination of disease because it pays in the long run; it is the desire to deal with disease as a state or a nation, since the objections to interference with the liberty of the individual have long since been overruled by the advantage of the common good.

Is it possible to frame "a comprehensive scheme big enough for a big ideal"? Dr. Addison, the new president of the Local Government Board in England who may have charge of the proposed bill for establishing a ministry of health, believes that it will be quite possible "to improve the national armor against disease" by the projected consolidation of efforts under the financial assistance of the state. Among others who are enthusiastic for the new movement, Addison has pointed out that the business of the health ministry does not begin and end with hospital matters. In addition to regular clinics in the larger centers of population it is proposed to organize portable clinics and laboratories. The training and organization of midwives and nurses must be undertaken in a systematic way. The problems of maternity will demand scientific attention. All branches of sanitation and preventive medicine will be pursued. In a broad sense the organization will be that of a medical intelligence department quite as much as that of an administration bureau. There will be laboratories and other features necessary for research; and information of diverse character will be gathered by the public medical authorities.

There has been considerable speculation as to a possible antagonistic attitude on the part of the medical profession on the score that all physicians would presently either become public servants or be without work. According to Dr. Addison, no such socialization of medicine is contemplated; in fact, it seems to be recognized that the function of the new movement is to supplement, not to supplant, the work of the practitioner, whose position will in no way be interfered with. To endeavor to keep as many people as possible as well as possible, and to insure that no sick person shall lack adequate care and attendance, may necessitate new posts and create a demand for many physicians; but any work in the direction of diagnosis and therapy must be conducted under such auspices as will carry professional opinion with it. The quack and charlatan may lament, but the honest medical man need not bewail the expansion of knowledge and opportunity.

Some concern has also been expressed regarding the fate of existing hospitals established as private benefactions. Reforms may, of course, be initiated at the suggestion of a central authority on health matters. It would assuredly not be difficult to enumerate instances in which such interference might be a blessing in disguise. But we cannot imagine that any present-day practicable schemes would even dream of supplanting existing organization. The hospitals and other institutions that have heretofore been maintained by voluntary contributions need neither be abolished nor turned into state establishments. They should be assisted in return for services that they may be invited to render.

Some alarm has been expressed in England regarding the "danger of medical despotism" in any compulsory scheme dealing with prenatal care and the welfare of children. A woman publicist has even designated a ministry of health with legalized authority over such matters as a menace to women and children. The recent restrictions of personal liberty, as exhibited in the outcome of the prohibition movement in America, must teach, however, that the principle of the greatest common good is likely to limit our individual freedom in many ways in the future as it has done in the past. Democracy does not mean license to behave without regard to the welfare of others.

A further, perhaps more debatable, concern has been expressed with regard to established governmental research bureaus in medicine under the new English scheme. There is no question that a ministry of health should have a department for scientific investigation, which is the very backbone of progress. But there is a medical research committee already in existence as a permanent institution created under the English national insurance act. To some it has seemed advisable that this should continue in an independent existence because medical research in the broader sense must have a wider sphere than that of national or insular concern. As one writer has remarked, medical research must deal not with England and Wales, but with the empire. There is much to be said in favor of some individuality and independence of effort in research, even at the expense of some duplication.

PARIS LETTER

PARIS, Jan. 16, 1919.

Enrolling for Military Service the Young Men of the Invaded Zone

It has been decided by the premier not to delay enrolling the young men of the classes of 1915 to 1919 (from 19 to 23 years of age) not yet registered, and to summon for reexamination the classes of 1913 to 1915, who have been held in the invaded regions which have just been reconquered. A special commission will classify these young men according to their fitness for service. The young men who are accepted for the army or the auxiliary service will be assigned, with as little delay as possible, to the corps which they would have joined if they had been called to the colors at the same time as their comrades. The others will be left in civilian life either permanently or subject to another examination after a specified interval.

Physicians and the Tax on War Profits

Deputy M. Bergeon made inquiry of the minister of finance as to the following: (1) Supposing that the law of July 1, 1916, concerning the contribution of war profits, were applied to physicians, would the commissions charged with the administration of that law have the right to demand of physicians that they furnish a list of their patients, and, if so, (2) would the physicians who complied with that demand be considered as having violated professional confidence or of having committed an offense rendering them liable to punishment by law? To these questions the minister replied that physicians, in common with all other contributors, should furnish the commission with all the data needed to establish the basis of taxation. If a list of patients must be supplied in order to arrive at the necessary conclusions, it will not be considered as encroaching on their responsibility inasmuch as they will be conforming to a legal requirement, and, the agents of the law, to whom this information will be given, are themselves bound to professional secrecy.

The Activities of the American Red Cross

MERCHANDISE STORAGE

In order to increase its efficiency, the American Red Cross divided France into zones when it first began its work. These zones have been abolished, and warehouses have been established in the devastated regions in which the needed merchandise will be stored by the Comités de secours appointed by the French government as it is received from the American Red Cross. At the cessation of hostilities, considerable material and merchandise were left in the hands of the Red Cross. Hence the Red Cross authorities have asked the French government to cooperate in the distribution of these stores among the destitute population. Warehouses have been or will be established at Lille, Amiens, Laon, Châlons, Mézières, Verdun, and in Belgium at Brussels, Courtrai and Adinkerke.

TUBERCULOSIS PROPAGANDA

The director of the American Antituberculosis Mission recently called a meeting in Paris of the representatives of this propaganda, who, during the past five months, have been making known all over France the most practical methods and the most simple means for combating and checking tuberculosis. Professor Gunn, assistant director of the Mission, reported the good results that have been obtained and detailed the program to be followed for 1919.

BALKAN RELIEF

The American Red Cross also sent a commission to the Balkans for the purpose of giving relief in Greece, Roumania, Serbia and Montenegro. The first contingent, in charge of Col. Henry W. Anderson, American Red Cross commissioner for the Balkans, has already left Paris; the remainder of the personnel will leave early next week. A special group consisting of physicians, nurses, etc., will be sent into each one of the four countries named, and all will be in charge of a directing staff whose headquarters will be at Belgrade. A special commission has been working in Serbia. It has furnished food and clothing to thousands of refugees in southern Serbia. This same commission will give relief to the people of northern Serbia and of eastern Macedonia.

Nurse Receives Decoration of Legion of Honor

Mme. Veuve Marie Segui, temporary nurse in military hospitals, has been made a chevalier of the Legion of Honor, with the following citation: "Devoted nurse, lavishing care on the war wounded since Sept. 1, 1914, was wounded while dressing a patient suffering from a grave septicemia and consequently contracted an infection which endangered her life and necessitated the amputation of her left arm."

Deaths

Dr. Louis-Edouard Bureau, doctor of natural science and formerly professor of botany at the Muséum d'Histoire naturelle, aged 88. He had been a member of the Académie de médecine, section of therapeutics and medical natural history, since 1901.——Dr. Frezoul, a former senator, aged 82 years, at Foix, département de l'Ariège. He served as a volunteer member of the medical corps during the Franco-Prussian war of 1870.

Dr. Etienne Destot, médecin-major of the first class, medicolegal expert of the tribunal de la Seine, died suddenly, aged 54 years. For several years he had been specializing in medical electricity and roentgenology. He published a number of works, notably on physiologic disturbances and the atrophy caused by the roentgen ray. When mobilization was begun he was put in charge of a hospital installed in a gymnasium in Paris.

Dispensary for Refugees

The Bureau des Secours généraux américains has opened a dispensary and a small hospital for refugees and évacués at Angoulême, département de la Charente. This work will be in charge of Dr. Lillie A. Arnett, of the Children's Bureau, who also has charge of the colony for children at Saint-Même, and visits regularly several small communes in the département de la Charente. The American Red Cross recently opened a dispensary for children at Essones in the département de Seine-et-Oise.

Books for the Blind

The Conférence of the "Livre de l'aveugle" was held in Paris under the presidency of M. Charles Krug, president of the Conférence des oeuvres d'assistance aux aveugles de guerre. Three sections were established: One section, presided over by General Balfourier, president of the Association Haüy pour le bien des aveugles, is charged with the task of cataloging and establishing a bibliographic service for books printed in Braille type; the second section, presided over by M. René Vallery-Radot, president of the Amis des soldats aveugles, will have charge of the printers and copyists and will ascertain the needs of blind readers; the third section, presided over by M. Ernest Vaughan, director of the Hospice des Quinze-Vingts, will have charge of the establishment of libraries for the blind.

Decoration of Legion of Honor for Brazilian Physician

At the time of his visit to the hospital maintained by the Brazilian government, Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire, conferred the cross of the Legion of Honor on Dr. Paul de Rio Branco, surgeon of the hospital, who voluntarily gave his services to France about Aug. 29, 1914, and has been working in behalf of the wounded continuously ever since.

Sir Almroth Wright

The Académie des Sciences has elected Sir Almroth Wright, of London, corresponding member for the section on medicine.

Recrudescence of Rabies

Rabies, which had disappeared almost entirely before the war, has, since the beginning of hostilities, made alarming progress. This is attributed wholly to the many dogs wandering around in the invaded districts; but the ineffectiveness of the police measures is also a factor. Before the war between 300 and 400 persons presented themselves annually at the Institut Pasteur for antirabies treatment; in 1916, 1,388 patients were treated; 1,543 in 1917, and 1,800 in 1918.

Marriages

HUGO SELWYN TAIT, Asst. Surg., Lieut. (j. g.), U. S. Navy, to Miss Barbara Smith, at New Orleans, November 30.

SIDNEY CLEVELAND NILES to Miss Eva Brandenburg, both of Toledo, Ohio, at Washington, D. C., January 15.

GUSTAVE GOODMAN HERPE to Miss Elsa Kuhn, both of Chicago, February 11.

Deaths

Clarence John Blake ⊕ Boston; Harvard Medical School, 1865; University of Vienna, Austria, 1866; aged 75; a member of the American Academy of Ophthalmology and Oto-Laryngology; American Laryngological, Rhinological and Otological Society, and American Otological Society, and president of the latter organization in 1876-1877; president of the Ninth International Otological Congress; once president of the Boston Society for Medical Improvement and the Boston Society for the Advancement of Physical Education; lecturer on otology in his alma mater from 1870 to 1875; instructor from 1875 to 1888, and professor from 1888 to 1913, and later professor emeritus; aural surgeon to the Massachusetts Charitable Eye and Ear Infirmary since 1871; president of the Infants' Hospital, and manager of the Children's Hospital, Boston; editor of the *American Journal of Otology* from 1879 to 1892; author of a standard textbook on operative otology; died at his home, January 29.

Samuel Light Hauck ⊕ Ottumwa, Iowa; Rush Medical College, 1891; aged 49; for twenty-seven years surgeon in the voluntary relief department of the Burlington System, but for the last few months identified with the sanitary department of the Illinois Central Railroad in Chicago; chief surgeon of the American Commercial Travelers' Association; died at his home, in Ottumwa, January 22, from cerebral hemorrhage.

Henry Mitchell ⊕ Asbury Park, N. J., and Daytona Beach, Fla.; Bellevue Hospital Medical College, 1867; aged 73; president of the board of health of Asbury Park from 1880 to 1894; member, secretary and executive officer of the New Jersey State Board of Health from 1894 to 1908; formerly surgeon of the One Hundred and Third Infantry, N. Y., N. G.; died at his winter home at Daytona Beach, Fla., January 31.

Ashley Wilson Fly ⊕ Galveston, Texas; Louisville (Ky.) Medical College, 1875; aged 63; a specialist in surgery; mayor of Galveston from 1893 to 1899; for several terms president of the board of health, and chairman of the committee on public health; professor of anatomy in the Texas Medical College; for two terms a regent of the University of Texas; died at his home, January 24.

Heikobus Johannes Hubertus Hoeve, Meherrin, Va.; University of Illinois, Chicago, 1905; aged 37; at one time a member of the Iowa State Medical Society, and professor of anatomy, and director of the pathologic department in Drake University, Des Moines; a member of the American Association of Anatomists; died at his home, December 22, from pneumonia following influenza.

Thomas Hundley Seay ⊕ **Capt., M. C., U. S. Army,** Laurel, Miss.; University of Nashville, Tenn., 1906; aged 36; head of the Laurel General Hospital, and a member of the state board of health; who had been on duty at Fort Oglethorpe, Ga., until his discharge from the service a short time ago; died at his home, January 15, from pneumonia following influenza.

Leroy Grant Armstrong, Boscobel, Wis.; Rush Medical College, 1859; aged 84; a member and once president of the State Medical Society of Wisconsin; surgeon of the Sixth, Eighth and Forty-Eighth Wisconsin Volunteer Infantry (Iron Brigade) during the Civil War; for nearly fifty years clerk of the local board of education; died at his home, February 1.

Edward Lewis Rochfort ⊕ **Lieut., M. C., U. S. Army,** New York City; Yale University, New Haven, Conn., 1912; aged 28; an instructor in United States Government Neurological School No. 1, New York City; who received his discharge from the Army in December; died at the Neurological Institute, New York City, January 26, from influenza.

Ralph Edwin Shrom ⊕ **Asst. Surg., Lieut. (j. g.), U. S. N. R. F.,** Philadelphia; Jefferson Medical College, 1904; aged 36; a specialist in gynecology; assistant surgeon to the Philadelphia Polyclinic and Strittmatter's Private Hospital, Philadelphia; died at his home, January 26, from pneumonia following influenza.

Walter Greenough Chase ⊕ Boston; Harvard Medical School, 1901; aged 59; secretary of the pathologic section of the Pan-American Medical Congress, at its meeting in Panama in 1905; skilled in photography and the roentgen ray; a specialist in the treatment of nervous diseases; died at his home, January 27.

Zack Jackson Moore ⊕ **Lieut., M. C., U. S. Army,** San Antonio, Texas; University of Texas, Galveston, 1915; aged 32; who entered the service in July, 1917, and was on duty with the British Expeditionary Forces in France and was wounded on March 24; died in Woolwich, England, October 26, from pneumonia.

George Newton Ferris, Brooklyn; Long Island College Hospital, Brooklyn, 1879; aged 64; a member of the Medical Society of the State of New York; from 1881 to 1889 superintendent of the Kings County Insane Asylum; died suddenly at the home of his sister in Brooklyn, January 28, from heart disease.

Rienzi Robinson ⊕ Danielson, Conn.; Long Island College Hospital, Brooklyn, 1869; aged 76; formerly president of the Connecticut State Medical Society; a member of the consulting staff of the Day-Kimball Hospital, Putnam, Conn.; died at his home, January 31, from pulmonary tuberculosis.

Valentine Milton Reichard ⊕ Fairplay, Md.; Jefferson Medical College, 1882; aged 60; one of the most highly regarded physicians of western Maryland; one of the founders of the Washington County (Md.) Medical Society; died at his home, January 26, from heart disease.

John Dwight Freeman ⊕ Topeka, Kan.; Rush Medical College, 1897; a chief surgeon of the Atchison, Topeka and Santa Fe Railway Hospital, Topeka, since 1899; died in Stormont Hospital, Topeka, January 26, from pneumonia following influenza.

Edward Sanders, New York City; New York University, New York City, 1876; attending physician to Mount Sinai Hospital and Dispensary and physician to the Hebrew Orphan Asylum; died at his home, January 29, from heart disease.

Charles Seymour Hart, Marietta, Ohio; Columbus (Ohio) Medical College, 1877; aged 62; a member of the Ohio State Medical Association; for several years surgeon for the local street railway company; died at his home, January 25.

W. Rice Holtzman, Stinesville, Ind.; Louisville (Ky.) Medical College, 1893; aged 51; a member of the Indiana State Medical Association; for two terms postmaster of Stinesville; died at his home, recently, as the result of influenza.

Francis Webb Drew, St. Louis; College of Physicians and Surgeons, Keokuk, Iowa, 1886; aged 67; at one time a member of the Missouri State Medical Association; died at his home, January 25, from cerebral hemorrhage.

James Andrew McQuillan ⊕ **Lieut., M. C., U. S. Army,** Jackson, Mich.; St. Louis University, 1912; aged 30; on duty with the American Expeditionary Forces in France; was killed by a shell near Valenciennes, October 23.

Henry Blender ⊕ **Lieut., M. C., U. S. Army,** Okeene, Okla.; Keokuk (Iowa) Medical College, 1907; aged 34; stationed at Camp Greenleaf, Ga.; died at that place, October 7, from lobar pneumonia following influenza.

Robert Valentine Sawin, Brimfield, Mass.; Jefferson Medical College, 1885; aged 62; a member of the Massachusetts Medical Society; died at the home of his daughter in Storrs, Conn., January 19, from nephritis.

Maurice Steinberger ⊕ Bridgeport, Conn.; University of Budapest, Hungary, 1889; Eclectic Medical College of the City of New York, 1909; aged 53; died at his home, December 23, from lymphatic leukemia.

Henry A. Wall ⊕ Tacoma, Wash.; University of Oregon, Portland, 1889; aged 53; formerly city health officer of Tacoma; died in St. Joseph's Hospital in that city, January 24, from hemorrhage of the stomach.

Andrew Lee Wagoner, Hobart, Okla.; Vanderbilt University, Nashville, Tenn., 1894; aged 52; a member of the Oklahoma State Medical Association; died at his home, December 26, from cerebral hemorrhage.

William J. Armstrong, Washington, D. C.; Georgetown University, Washington, 1870; aged 83; a member of the Medical Society of the District of Columbia; died in Washington, D. C., December 28.

A. A. Hyer, Washington Court House, Ohio; American Eclectic Medical College, Cincinnati, 1882; aged 71; at one time a member of the Ohio State Medical Association; died at his home, January 28.

J. M. W. Langsdale, Florence, Ind.; Medical College of Ohio, Cincinnati, 1874; aged 71; for forty-two years a practitioner and druggist of Florence; died at his home, January 28, from heart disease.

Harris Soper Greeno, Fairhope, Ala.; Bellevue Hospital Medical College, 1882; aged 87; first mayor of the Fairhope single tax colony; died in Mobile, Ala, February 1.

⊕ Indicates "Fellow" of the American Medical Association.

Joseph H. Haydon ⊕ Newark, N.J.; New York University, New York City, 1872; aged 67; consulting physician to St. James Hospital, Newark; died at his home, January 24, from cerebral hemorrhage.

Hugh L. Routh, Batavia, Ark.; Vanderbilt University, Nashville, Tenn., 1885; aged 74; a member of the Arkansas Medical Society; a veteran of the Civil War; died in Otsego, Mich., recently.

Charles Reinhold Baker, San Francisco; Cooper Medical College, San Francisco, 1900; aged 42; died in Franklin Hospital, San Francisco, January 30, from pneumonia following influenza.

Francis Joseph Ennis, Burlington, Vt.; University of Vermont, Burlington, 1914; aged 31; a member of the Vermont State Medical Society; died at his home, October 27, from influenza.

Albert A. G. Starck ⊕ Philadelphia; Jefferson Medical College, 1883; aged 66; also a graduate of the Philadelphia College of Pharmacy; died at his home, January 30, from heart disease.

William Makepiece Roads, Los Angeles; Medical College of Ohio, Cincinnati, 1887; aged 57; for many years a practitioner of Cincinnati; died at his home, January 10.

Charles Petite Tobin, Hampton, Ark.; Tulane University, New Orleans, 1879; aged 64; died at the home of his sister in Little Rock, Ark., January 14, from pneumonia.

William Mainland Brown, Oakland, Calif.; University of Louisville, Ky., 1872; aged 78; for many years a surgeon on Pacific steamships; died at his home, January 21.

David Harrison Conley, Naples, N. Y.; Cleveland University of Medicine and Surgery, 1868; aged 74; died in Clifton Springs, N. Y., November 8, from nephritis.

Henry Griswold ⊕ New York City; University of Louisvill, Ky., 1864; aged 75; a fellow of the New York Academy of Medicine; died at his home, February 1.

Camillo Bizzozero, Torrington, Conn.; University of Milan, Italy; aged 60; was run over and killed by a train at a grade crossing at Newfield, Conn., December 26.

Amant H. Ohmann-Dumesnil, St. Louis; Washington University, St. Louis, 1880; aged 61; died in the City Hospital, St. Louis, January 18, from tuberculosis.

Orlando Ewers, Nunn, Colo.; formerly of DeSoto, Wis.; aged 72; a practitioner for forty-four years; died at his home, December 25, from cerebral hemorrhage.

John Harford Chatten, Cincinnati; Eclectic Medical Institute, Cincinnati, 1859; aged 79; died suddenly in Akron, Ohio, January 20, from cerebral hemorrhage.

Joseph Allard, Fall River, Mass.; Indiana Eclectic Medical College, Indianapolis, 1887; aged 62; died at his home, December 15, from lobar pneumonia.

A. L. Nance, Gainesville, Ga.; Philadelphia University of Medicine and Surgery, Eclectic, 1868; aged 74; died at his home in October, 1918, from ascites.

James Patterson Burd, Philadelphia; University of Pennsylvania, Philadelphia, 1871; formerly of Juniata County, Pa.; died in Philadelphia, Dec. 16, 1918.

William I. Ballinger, Plain City, Ohio; Western Reserve University, Cleveland, 1866; aged 90; died at his home, December 29, from senile debility.

Henry L. Bawden, Ismay, Mont., formerly of Davenport, Iowa; State University of Iowa, Iowa City, 1873; aged 73; died at his home, January 22.

John Noble Yates, Wilmington, Del.; Hahnemann Medical College, Chicago, 1895; aged 74; died at his home, January 17, from cerebral hemorrhage.

Charles Hatfield Greenough, Bayport, N. Y.; Bellevue Hospital Medical College, 1873; aged 69; died at his home, January 17, from septicemia.

Robert Stewart, St. Joseph, Mo.; Missouri Medical College, St. Louis, 1856; aged 83; died at his home, January 14, from cerebral hemorrhage.

Jacob Leonard Eisendrath ⊕ Chicago; University of Illinois, Chicago, 1904; aged 38; died at his home, January 25, from pneumonia.

Thomas Lewis Riley, New York City; Bellevue Hospital Medical College, 1897; aged 47; died in Bellevue Hospital, January 24.

John A. Kressley, New Tripoli, Pa.; Hahnemann Medical College, Philadelphia, 1889; aged 56; died at his home, January 19, from rheumatism.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CERELENE NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report declaring Cerelene inadmissible to New and Nonofficial Remedies. W. A. Puckner, Secretary.

Cerelene, a paraffin preparation for the treatment of burns, was submitted to the Council by the Holliday Laboratories, with the statement that it was composed of 84 per cent. paraffin, 15 per cent. myricyl palmitate, and 1 per cent. purified elemi gum to which is added oil of eucalyptus 2 per cent. and betanaphthol 0.25 per cent. It was explained:

> "Myricyl Palmitate is a purified form of Beeswax, free from all impurities, acids, etc., which is solely manufactured by this Company. . . ."

It was also stated that on "special order" Cerelene has been made containing oil of eucalyptus and resorcin, oil of eucalyptus and picric acid, and picric acid alone. The following report on the preparation was presented to the Council by the referee to whom Cerelene had been assigned:

> Cerelene is another compound wax for the treatment of burns. According to the work of Sollmann (J. A. M. A., 1917, 68, p. 1799) it is highly improbable that compound mixtures have any advantage over simple paraffin of low melting point. Cerelene must therefore be considered as an unessential modification of paraffin, and as in conflict with Rule 10; unless definite evidence of superiority is submitted. Cerelene mixtures containing medicinal ingredients also appear unscientific since the evidence that the ingredients do not leave the wax has not been successfully contradicted. Finally, the claims made for Cerelene are rather extreme, and would need some revision before they could be accepted.
>
> The A. M. A. Chemical Laboratory reports:
>
>> The physical properties of Cerelene are as follows:
>>
>> | | |
>> |---|---|
>> | Melting point 50.0 C. by U. S. P. method. | |
>> | Ductility limit...................... | 30.5 C. |
>> | Plasticity limit...................... | 26.4 C. |
>> | Not strong at...................... | 38 C. |
>>
>> Adheres moderately well; detaches with "pulling." On heating, readily loses eucalyptol, and a small amount of resinous substance forms in the bottom of the beaker. If Cerelene is heated to 145 C. and cooled, the resulting product no longer has the properties of the original Cerelene.
>
> It is recommended that the preceding report be sent to the Holliday Laboratories, and that unless its superiority over simple paraffins is demonstrated and the unwarranted claims abandoned, Cerelene be declared inadmissible to New and Nonofficial Remedies for conflict with Rules 6 and 10.

This report was submitted to the Holliday Laboratories with the information that it had been adopted, Oct. 3, 1917. It was also explained that before Cerelene could be accepted, the unofficial and unstandardized constituent "myricyl palmitate" would have to be considered and accepted for New and Nonofficial Remedies since, for obvious reasons, the Council does not accept a preparation which contains an unofficial and unstandardized substance not in N. N. R.

The Holliday Laboratories acknowledged receipt of the Council's report and asked that the matter be held in abeyance until the requested evidence had been obtained. Later the Council was advised that the advertising circulars for Cerelene had been withdrawn with the exception of one giving directions for its use. Five months later, the firm stated that experiments were being made "to determine the actual strength of Cerelene in comparison with other paraffin waxes.

. . ." Nothing further has been heard from the Holliday Laboratories and no reply has been received to an inquiry made Oct. 12, 1918. The Council therefore authorizes publication of its report declaring Cerelene inadmissible to New and Nonofficial Remedies.

Correspondence

"THE LOS ANGELES COUNTY HOSPITAL AND INTERNS"

To the Editor:—Relative to the editorial comment in The Journal, Jan. 4, 1919, p. 46, I believe that the presentation of the facts regarding the Los Angeles County Hospital is so worded as to give a wrong impression of the conditions that exist in this institution. The civil service examinations for interns for the Los Angeles County Hospital are held in San Francisco, Los Angeles, St. Louis, Chicago, and one or two other cities. According to the ranks of the men who take the examinations, the civil service compiles a list. When vacancies occur, the next highest man is called on to see whether he will accept the position.

When osteopaths have been admitted as interns, it simply means that these men took the civil service examinations, and that in due time when vacancies occurred, their names were reached and the positions had to be offered to them. This is due to the fact that a goodly number of the men who take the examinations, and who are high up on the list, do not accept the positions in the first place, or if we wait, then they accept other work. In that way the bunch of eligibles among well trained men reaches an end, and then the only others on the list are those of lesser education and training, who, however, having taken the examinations, are, according to law, to have the privilege of accepting these positions.

There is no thought on the part of the Los Angeles County Hospital authorities to put osteopath interns in that institution. The hospital must, however, have interns, and all it can do is to provide for examinations on a large scale and then hope that well trained men in regular medicine will be in sufficient number on these lists to keep the internships always among that group. In practice, however, it has not worked out that way for the reasons already noted.

George H. Kress, M.D., Los Angeles.

"THE SUPPLY OF PRACTICAL NURSES"

To the Editor:—I read with much interest your excellent editorial, "The Supply of Practical Nurses," which appeared in The Journal, January 25. Congratulations! I was glad to hear some one with backbone speak up. Truer words were never spoken. The nursing situation here in Portland and in Maine, for that matter, has been, and is, most trying, for just the very reasons mentioned in your editorial.

Adam P. Leighton, Jr., M.D., Portland, Maine.

HARMLESSNESS OF GLASS IN DIGESTIVE TRACT

To the Editor:—The authors of the recent excellent experimental proof of the harmlessness of glass in the digestive tract (The Journal, Dec. 28, 1918, p. 2127), and that part of the public which has been so greatly worked up over rumors of contamination of food by glass, may be equally interested to recall that this subject was one of practical interest long ago, when murder by poison was not infrequent.

When Benvenuto Cellini was a prisoner of the pope in Rome in 1539, an enemy in the papal court attempted his life by the use of diamond dust in the prisoner's food. As Cellini says:

> In itself it is not poisonous at all; but being extraordinarily hard, its sharply pointed angles do not become rounded when it is reduced to powder, as would be the case with other stones. Only the diamond keeps its sharp edge, so that, if it enters the stomach along with food, during the process of digestion it sticks to the coats of the stomach and the bowels, and as the new food comes ever pushing forward, it is not long before it pierces them and death is the result; whereas no other kind of stone or glass sticks to the organs, but goes on its way with the food.—Life of Benvenuto Cellini, translated by McDonnell, Everyman's Edition, p. 263.

Fortunately for Cellini, the jeweler employed to powder the diamond pocketed the gem and substituted a softer stone, a beryl, which caused no harm at all.

George W. Corner, M.D., Berkeley, Calif.

"METHEMOGLOBINEMIA DUE TO POISONING BY SHOE DYE"

To the Editor:—I am glad that Dr. Stifel has so forcibly presented the findings of the cases of nitrobenzene poisoning from shoe dye (The Journal, Feb. 8, 1919, p. 395). It has long been the custom for shoe dressing manufacturers to add a certain amount of this very dangerous substance to their wares. I am unable to find that it serves any other purpose than the odor it gives the preparation. It would seem desirable that some one should vigorously protest against the reckless use of this particular poison. Having myself seen fatal cases from nitrobenzene poisoning, I am strongly prejudicial against the continued use of this substance as a scent for shoe dressings, soaps and the so-called disinfectants, simply because it is a cheap perfume and covers the unpleasant odors. The medical profession should take a definite stand against useless poisons.

W. S. Wadsworth, M.D., Philadelphia.

SUBNORMAL TEMPERATURE FOLLOWING INFLUENZA

To the Editor:—During this pandemic of influenza I have observed many patients with a temperature of 94, and several much lower than 94. Some few I find with a decided slowness in the heart's action. Is this low temperature due to a relaxed condition of the entire nervous system and lowered vitality brought about by improper nourishment? In my experience I find that patients having the influenza or those recovering from it are usually suffering with anorexia. This, I understand, would lower the vitality; but I cannot see why the unusual subnormal temperature is so marked.

J. P. Brandon, M.D., Essex, Mo.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OFFICER'S RIGHT TO A MONTH'S PAY WHEN DISCHARGED FOR DISABILITY

To the Editor:—I was a first lieutenant in the Medical Reserve Corps from Aug. 11, 1917, to March 6, 1918, when I was honorably discharged on account of "disability existing prior to my entrance into the service, etc." I was not given an extra month's pay to set me up in the practice that I had given up. Now, Article III, Section 300, War Risk Insurance Act of Oct. 6, 1917, as amended June 25, 1918, provides that "officers and enlisted men or other members shall be taken to have been in sound condition when examined, accepted and enrolled for the service, and thereafter entitled to compensation under the act of disability." In other words, "legally no disorder can have preexisted in a person accepted for military service." Am I not therefore entitled to an extra month's pay as any man who is honorably discharged?

B. W.

Answer.—According to the Act of Congress approved May 24, 1917—the Selective Service Act—"the President is hereby authorized to discharge any officer from the office held by him under such appointment for any cause which, in the judgment of the President, would promote the public service; and the general commanding any division and higher tactical organization or territorial department is authorized to appoint from time to time military boards . . . to examine into and report upon the capacity, qualification, conduct and efficiency of any commissioned officer within his command other than officers of the Regular Army holding permanent or provisional commissions therein . . . and if the report of such board be adverse to the continuance of any such officer and be approved by the President, such officer shall be discharged from the service at the discretion of the President with one month's pay and allowances," for the payment of which application should be made to the Director of Finance. Pay of the Army Division, Pay and Mileage Branch, Munitions Building, Washington, D. C.

LINIMENTS OF SOLID CONSISTENCY

To the Editor:—Please describe a method of preparing a solidified liniment, giving the proportions of chemicals used to make a 5 pound mixture, how much capsicum, terebene, oil of eucalyptus, camphor, etc. —if I desired to use these drugs—would be necessary to add to 5 pounds of petrolatum in order to produce a decided effect without blistering, etc. Also, what can I use to give it a dark amber color?

N. B. Noll, M.D., Slovan, Pa.

Answer.—Linimentum camphorae, U. S. P., contains 20 per cent. of camphor in cottonseed oil. Petrolatum may be used in place of the cottonseed oil. The camphor is dissolved in the petrolatum by the aid of gentle heat, 1 pound of camphor being used to 4 pounds of petrolatum. Any quantity of terebene or oil of eucalyptus desired could be incorporated in the petrolatum, the latter being liquefied first by warming.

If an amber color is desired, dealers in petrolatum products will supply an amber petrolatum of the shade wanted.

The National Formulary, Edition 4, p. 103, gives a formula for linimentum saponato-camphoratum, or solid opodeldoc. This liniment is a solid and contains camphor, volatile oils, etc. No doubt this formula could be modified to include other medicaments, or entirely to replace the camphor and volatile oils. The same book (p. 164) contains a formula for petroxolinum spissum, or solid petroxolin, which might be used as a basis for the incorporation of drugs such as our correspondent mentions.

An ointment of capsicum is described in the British Pharmacopeia, 1914, p. 437. This is made by digesting 25 gm. of bruised capsicum fruit with a mixture of 10 gm. of paraffin, 75 gm. of petrolatum and 10 gm. of lard, and then straining the mixture.

ROACHES IN A SANATORIUM

To the Editor:—We are having a great deal of trouble at the present time with roaches throughout the building, and it occurred to me that you might be able to make some suggestions as to the best method of exterminating the roaches. We have used various sprays and powders with very unsatisfactory results.

L. F. M. ——, Sanatorium ——, New York.

Answer.—According to Farmer's Bulletin 648, United States Department of Agriculture, the most effective material for the extermination of roaches is a mixture of 50 per cent. of sodium fluorid and 50 per cent. of inert material, such as flour or starch. It is employed in the same manner as other roach powders, that is, by forcing into crevices, sprinkling around drain pipes, etc.

Milk and German Infant Mortality Rate.—With regard to milk, as, indeed, with regard to almost everything else, we have hitherto labored under a foolish Germanic delusion, which the war has happily exploded. We have actually believed that we owe the best research work and the elucidation of the most difficult problems in connection with milk to Germany. The vainglorious pretensions of that egregious people, their appropriating propensities which have led them to purloin and fake up as new discoveries made in other countries, and the flattering utterances of some short-sighted professors of our own who have studied for a few months in a German laboratory, and are proud of their gutteral attainments, have conduced to this misconception. In a recent work on "Milk," published in this country, I find that of 273 references appended to the chapters on the biologic properties of milk, 181 are to books and papers of German origin. Nothing could be more misleading. The Germans have engaged in all sorts of meticulous investigations, and have endlessly corroborated and contradicted each other; but, as regards all practical hygiene, and administrative questions relating to milk, we should stand just where we are today if Germany had never existed.—Sir James Crichton-Brown, *Journal of State Medicine.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.

Arizona: Phoenix, April 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

California: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, April 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven

Idaho: Pocatello, April 1-2. Sec., Dr. Ray H. Fisher, Rigly.

Illinois: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Indiana: Indianapolis, Feb. 26-28. Sec., Dr. W. T. Gott, 84 State Capitol Bldg., Indianapolis.

Iowa: Iowa City, March 24-26. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Maine: Portland, March 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 1-4. Sec., Dr. T. S. McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

National Board of Medical Examiners: Philadelphia, June 2-7. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

Rhode Island: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

ANNUAL CONFERENCE ON MEDICAL EDUCATION AND LICENSURE

The next conference on Medical Education and Licensure will be held on the Eighteenth Floor of the La Salle Hotel, Monday and Tuesday, March 3 and 4, 1919. On Monday morning the Council on Medical Education will hold its Fifteenth Annual Conference, the session to begin at 9 o'clock. The program is as follows:

Opening remarks, Dr. John M. Dodson, acting chairman of the Council on Medical Education, Chicago.

"The Year in Medical Education," Dr. N. P. Colwell, secretary of the Council on Medical Education, Chicago.

"The Needs of Medical Education as Revealed by the War," Brig. Gen. E. L. Munson, Medical Corps, U. S. Army.

"The Medical Enlisted Reserve Corps and Its Relations to Medical Education During the War," Capt. F. C. Waite, Sanitary Corps, U. S. Army.

"The Desirability of Units of the Reserve Officers' Training Corps in Medical Schools," Lieut.-Col. H. D. Arnold, Medical Corps, U. S. Army.

Discussion: Major-Gen. Merritte W. Ireland, Surgeon-General, U. S. Army.

Rear-Admiral William C. Braisted, Surgeon-General, U. S. Navy.

Brig.-Gen. F. A. Winter, Army Medical School.

Rear-Admiral E. R. Stitt, Navy Medical School.

On Monday afternoon there will be a joint conference of the Council on Medical Education with the Federation of State Medical Boards, the session to begin at 2 o'clock. The program is as follows:

"Hospital Standardization and the Intern Year," Dr. A. R. Warner, president of the American Hospital Association, Cleveland.

Discussion: From the Standpoint of the Medical School, Dr. E. P. Lyon, dean, University of Minnesota Medical School, Minneapolis.

From the Standpoint of the State Licensing Boards, Mr. Francis W. Shepardson, director of the Department of Registration and Education of the state of Illinois, Springfield.

From the Standpoint of the Hospital, Mr. Richard P. Borden, Trustee of the American Hospital Association, Fall River, Mass.

On Tuesday morning there will be a joint conference of the Federation of State Medical Boards with the Association of American Medical Colleges, the session to begin at 10 o'clock. The program is as follows:

"Relation of Teaching Methods to Licensure Examinations," Dr. Walter P. Bowers, secretary of the Massachusetts State Board of Registration in Medicine, Boston.

"Cooperation in Examinations by the National Board of Medical Examiners, State Licensing Boards and the Medical Schools," Dr. John S. Rodman, secretary of the National Board of Medical Examiners, Philadelphia.

Discussion by Drs. John M. Dodson, B. D. Harison, Isadore Dyer and Thomas McDavitt.

On Tuesday afternoon the Association of American Medical Colleges and the Federation of State Medical Boards will hold separate meetings including their business sessions. At the meeting of the Association of American Medical Colleges, the following program will be presented:

President's Address, Dr. W. J. Means, Columbus, Ohio.

"Lengthening the College Term," Dr. George Blumer, dean of the Yale University School of Medicine, New Haven, Conn.

"Premedical Requirements of Returning Soldiers," Dr. E. P. Lyon, dean, University of Minnesota Medical School, Minneapolis.

"Freedom in Medical Education," Dr. C. R. Bardeen, dean, University of Wisconsin, Medical School, Madison.

At the meeting of the Federation of State Medical Boards of the United States, besides the reports of standing committees and the annual election of officers, the program will consist of:

President's Address, Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, Denver.

"The Annual Registration of Physicians," Dr. Frederick R. Green, secretary of the Council on Health and Public Instruction of the American Medical Association, Chicago.

R. O. T. C. UNITS AT MEDICAL SCHOOLS

The Medical Department of the Army is interested in the establishment of R. O. T. C. units at medical schools as a means of building up a reserve corps whose members, when called from civilian life to military service, will be competent to perform the essential duties of medical officers in the Army without further training. Rapid mobilization of an army should be provided for, and the "firing line" of the Medical Department begins the moment that soldiers are assembled in camps.

For this purpose these men should have, in addition to the qualifications for civilian practice, at least the following qualifications:

1. A knowledge of military hygiene and sanitation.
2. A sufficient knowledge of army organization and methods to enable them to procure supplies and carry on the administrative functions of their positions.
3. A sufficient military training to enable them to command the soldiers of the Medical Department under their charge.

These requirements can best be met through training in R. O. T. C. units established in medical schools and in summer camps. It is believed that such training can be so arranged as not to interfere seriously with the course of study in medicine, and that the physical training and discipline incident thereto will be of distinct personal benefit to the students.

These general ideas were presented for consideration at a conference at Chicago, January 11, in connection with the meeting of the Association of American Colleges. The general plan was unanimously approved by this conference, and the opinion was expressed that a concrete plan along these lines would be approved by medical schools. The details of a definite program for R. O. T. C. units in medical schools are now being worked out and will be presented for the consideration of all medical schools at the conference on medical education in Chicago, March 3 and 4, 1919.

New Hampshire December Examination

Dr. Charles Duncan, secretary of the New Hampshire Board of Registration in Medicine, reports the written examination held at Concord, Dec. 28-29, 1918. The examination covered 11 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 2 candidates examined, 1 passed and 1, an osteopath, failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Tufts College Medical School	(1910)	92

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Boston University	(1890)	Mass.
University of Vermont	(1880)	Mass.

Book Notices

War Neuroses. By John T. MacCurdy, M.D., Psychiatric Institu Ward's Island, New York, with a Preface by W. H. R. Rivers, M.I Fellow of St. John's College, Cambridge. Cloth. Price, $2.50. I 132. *New York: G. P. Putnam's Sons, 1918.*

The author was sent to England in 1917 to study nervo disorders caused by the war, and this excellent monogra is the result of his observations in British hospitals. It one of the best-balanced contributions to the subject as y published, although it is to be regretted that the author d not have the benefit of a visit to France as well, for t French were quick to appreciate the war neuroses and prom in providing for them. Some of the matter in the book relatively out of date and should be revised. For instan the statement is made that "the term 'shell shock' has be officially adopted by the British War Office." In fact, t term has been officially abolished.

MacCurdy's classification is delightfully simple, as believes that the vast preponderance of cases may be divid into two types: anxiety states and conversion hysteria. T former resembles what frequently is termed neurasthe (though we believe it is more like psychasthenia), and t latter is ordinary hysteria, which the author qualifies as *co version* because an idea is carried over into a physical syn tom. Psychologically the essential mechanism is the sa in that the psychoneurosis is a subconscious means of esca from a situation which for some reason or other has beco insupportable. Anxiety states are more frequent in offic in the more intelligent, in those who (more or less unco sciously) long for death. Hysteria is more frequent in p vates, the less intelligent, and in those who desire a wou as a means of relief. Typical cases are reported to illustr the types and illuminate the pathogenesis. If the autho classification is simple, his descriptions and his explanati of the nature of the cases are equally clear. He succeeds making a complex subject easily understandable. The features make his monograph of permanent value. Althou the advent of peace has dissipated the majority of w neuroses, the principles of pathology, genesis and treatme so lucidly expounded, apply to the neuroses of civil li Unfortunately, however, the peace neuroses are apt to be mo complex and more difficult to treat than those of war.

Chapter VI is a very rational one on concussion, and wholesome reading for any practitioner because it so we shows the difference between the organic and the function cases. A short chapter on heart neuroses is also very goo and anticipates the general conclusion which has followe that most of the cases in soldiers of "disordered action of th heart" are not neurotic in the narrow sense but are to l regarded as of organic origin, either from some endocri disorder, disturbance of the vegetative nervous system involvement of the inherent cardiac mechanism.

Roentgen Diagnosis of Diseases of the Head. By Dr. Arth Schüller, Head of the Clinic for Nervous Diseases at the Franz-Jose Ambulatorium, Vienna. Authorized Translation by Fred F. Stodkin M.D., M.R.C., with a Foreword by Ernest Sachs, M.D., Associa Professor of Surgery in Washington University. Approved for Pu lication by the Surgeon General of the United States Army. Clot Price, $4. *Pp. 305, with 97 illustrations.* St. Louis: C. V. Mos Company, 1918.

Roentgenography of the skull has come to occupy an important place in the diagnosis of intracranial conditions. Schül ler has studied this subject from every angle, and presen his findings in a practical rather than technical manner his book will therefore appeal more to the clinician than the roentgenologist. Normal conditions of the skull are exce lently described and illustrated, and make it possible any careful observer to distinguish normal variations fr pathologic conditions. Chapter I reviews the normal re tions as to size, shape and structure of the skull at vari ages, as well as the different varieties of skulls. Chapte treats of the irregularities in the development of the sk the anomalies of size and shape in consequence of dis bances in growth of the skeleton, changes in structure bone in consequence of inflammation and new growths injuries of the skull. Chapter III, in addition to path changes in the brain that can be exhibited roentgenologically, takes up the changes in the skull produced by intracranial affections. In the appendix are discussed the changes that can be determined roentgenologically in the nose, ear, eye and teeth. The many excellent illustrations bring out clearly the various points described in the text. The extensive bibliography which follows the appendix cannot fail to prove of value. American roentgenologists have not been overlooked entirely, although some meritorious work done in this country on the roentgenologic findings in the skull in epilepsy receives no mention whatever.

SYPHILIS, PALUDISME, AMIBIASE: TRAITEMENT INITIAL ET CURE DE BLANCHIMENT. Par Paul Ravaut, Médecin des Hôpitaux de Paris. Préface du Professeur Fernand Widal. Paper. Price, 4 francs. Pp. 88. Paris: Masson & Cie, 1918.

In the one volume Ravaut considers syphilis, malaria and amebiasis, emphasizing their close relationship through their protozoal origin, through the fact that there is a medication almost specific for each, and through the many points of similarity that they present throughout their course and in their treatment. The author is an ardent advocate of the necessity for vigorous treatment in the early stages of these diseases, for in all of them the chances for a cure are best at this time, before the organisms have established themselves in visceral foci. He gives detailed outlines of his plans for intensive early treatment, together with numerous formulas. He also describes the methods of treatment to be followed in the later or chronic stages. Thus the text embodies monographs on the treatment of these three diseases, which have been so frequent and important in France during the war, and is a summary of the recent advances that have been made in the knowledge of their treatment.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Sixth edition. Cloth. Price, $3.75 net. Pp. 691 with illustrations. Philadelphia: W. B. Saunders Company, 1918.

New editions are often simply new impressions without any additions or changes. Dr. Jordan's work is a new edition in the true sense of the word because it brings all of the subject matter up to date. Because of the advancing knowledge of certain pathogenic bacteria, the chapter on the pneumococcus has been entirely rewritten and that on the meningococcus extensively revised. Those who have followed the large amount of literature concerning the pneumococci during the last two or three years will be astonished to find how briefly and compactly Dr. Jordan has summarized these numerous investigations. Of course, the literature of his subject has been greatly augmented by the recent epiemic of respiratory infections, and no doubt more extensive ddition will be required for the next edition of the book. There are also new sections giving brief summaries of our resent knowledge of infectious jaundice, rat-bite fever and rench fever. This is perhaps one of the best general introluctions to the subject of bacteriology that has been prepared. With excellent discrimination the author lays stress on the fundamental facts of interest to the beginning student and to the general reader. Those who find it necessary to go farther into the subject have the way pointed out for them by well-chosen bibliographic references.

PERSONAL HYGIENE AND HOME NURSING: A PRACTICAL TEXT FOR GIRLS AND WOMEN FOR HOME AND SCHOOL USE. By Louisa C. Lippitt, R.N., Assistant Professor of Corrective Exercises, University of Wisconsin. Cloth. Price, $1.28. Pp. 256, with 79 illustrations. Yonkers-on-Hudson: World Book Company, 1919.

This book aims to give the general principles of home nurs-ng to girls and women. It lays down practical instruction or the conduct of daily life and gives directions for preventng the spread of infection from cases of communicable disase. The reader is furnished with information as to what o do in cases of accident or sickness, and also concerning he use of a few simple home remedies. A better knowledge f the contents of this book will lead the women of the counry to better appreciate the advice and services of a physiian and enable them to understand the fallacy of many of he unscientific fads which are now so common. The book written in an interesting style and is well illustrated.

Social Medicine, Medical Economics and Miscellany

A Comparison of the Mortality Rates by Weeks During the Influenza Epidemic of 1889-1890 and During the Primary Stage of the Influenza Epidemic of 1918 in Twelve Cities in the United States

In *Public Health Reports* (Jan. 31, 1919) are published charts and tables whereby it is possible to compare the epidemic of 1890 with the recent epidemic of respiratory disease for twelve of the large cities of the United States. The 1890 figures are obtained from a compilation made by Dr. S. W. Abbott, secretary of the Massachusetts State Board of Health. The peak weeks of that epidemic are compared with the peak weeks of the present epidemic. As a basis for comparison, the annual mortality rate by weeks has been employed, since this affords a true picture of the mortality rates as affected by the epidemic. In the accompanying charts the mortality rates have been plotted for each of the twelve cities and for the twelve cities as a single population group. From the statistics and the charts, *Public Health Reports* concludes that:

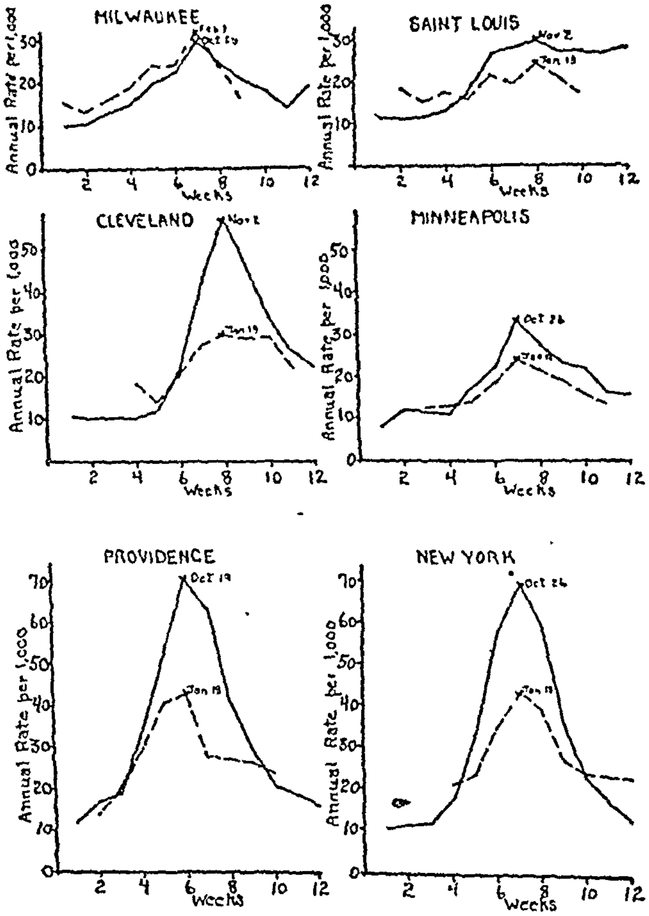

Chart 1.—Annual death rate per thousand population from all causes, by weeks, in the influenza epidemic of 1889-1890 (broken line) and 1918 (continuous line).

1. The mortality rate rose to a much higher point during the primary wave of the 1918 epidemic than in the epidemic of 1889-1890 in nine of the twelve cities. It is of interest to note that the rate was relatively low during both epidemic periods in St. Louis, Milwaukee and Minneapolis. If the mortality during the eight weeks of highest mortality is compared for the two epidemic periods in the twelve cities, considered as a single population group, it is seen that the annual mortality rate during the period Dec. 15, 1889, to Feb. 8, 1890, was 26.7, as against 35.2 for the period Sept. 29 to Nov. 23,

1918. In the peak week the rate rose to 55.6 in the 1918 epidemic as compared with 35.4 in the 1889-1890 epidemic.

2. While considerable irregularity in the curves as plotted in Chart 1 is evident, the curves of the two epidemics manifest, on the whole, quite a striking similarity for the same cities considered individually and as a whole. The length of the primary stage or wave—aside from recrudescences or continuance of relatively high, but not truly epidemic mortality rates—was quite similar for the two epidemics in all of the cities.

Spanish-American Medical Fellowship

Commenting on the publication of a Spanish edition of The Journal, the London *Lancet*, January 11, says: "The spirit of friendly cooperation has invaded medical circles on both sides of the Atlantic, and one of its latest developments is the proposed issue of a Spanish edition of the very ably edited *Journal of the American Medical Association.* The purpose of the issue is to promote the study of scientific medicine, and in so doing to further a closer international relationship between the great federation of English-speaking states in the North and the South. Last March President George E. Vincent, of the Rockefeller Foundation, approached the editor of the *Journal of the American Medical Association* with a suggestion on the subject, and at a subsequent meeting of the board of trustees of the Journal the publication of a Spanish edition was authorized. The first number is arranged to appear early in the present month, and the issue will be continued, for the time being, twice a month. All that is of more general interest and permanent value in the weekly Chicago edition will appear in the Spanish issue. Some 2,000 medical practitioners in Central and South America have been asked for their opinion as to the reception such a journal would meet with, and all the replies as yet received have been favorable. Up to the present Mexico and South America have been wont to turn to France and Germany for undergraduate and postgradute teaching, and to take from them their inspiration toward progress. This new venture may lead scientific men generally of the American Continent to realize their identity of interest and to open up opportunities for interchange of knowledge and of the results of research in various fields. We do not construe it in the sense of a rigid application of the Monroe doctrine. Certain standard English textbooks of medicine have already been translated into Spanish, and we should like to see this peaceful form of penetration continue and develop."

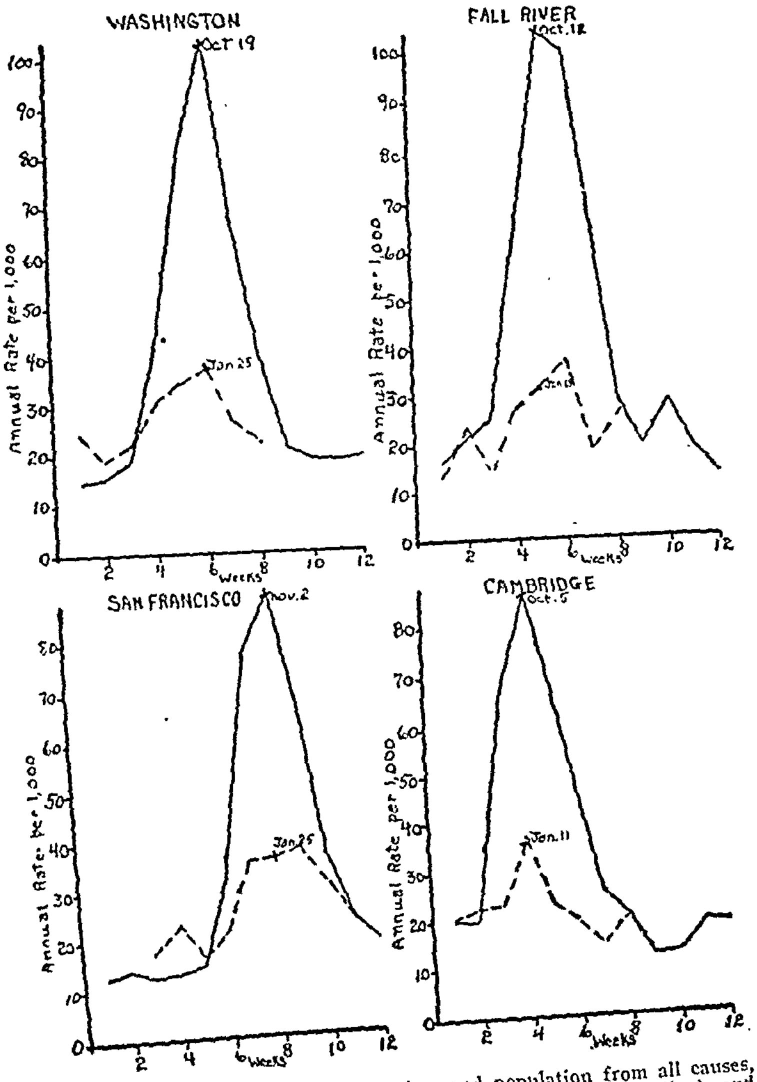

Chart 2.—Annual death rate per thousand population from all causes, by weeks, in the influenza epidemic of 1889-1890 (broken line) and 1918 (continuous line). (See page 517.)

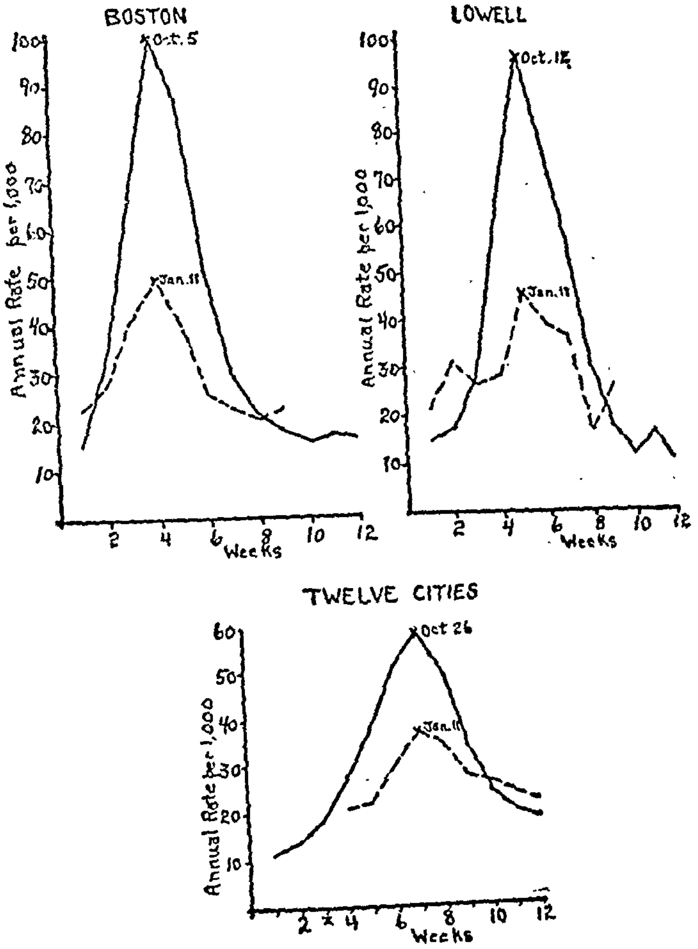

Chart 3.—Annual death rate per thousand population from all causes, by weeks, in the influenza epidemic of 1889-1890 (broken line) and 1918 (continuous line). (See page 517.)

Demobilization and Disease

The workmen and soldiers' council at Berlin, it is reported, recently has issued an appeal to the public, signed by sixteen physicians, pointing out the danger of dissemination of disease by the returning soldiers. Every soldier who feels sick is urged to go at once to some physician or hospital and remain under treatment so long as ordered. Those with vermin are urged to get deloused immediately. It says that those who do not heed these warnings will be doing great injustice to themselves, to their families, and to the entire people. The *Nederlandsch Tijdschrift*, which reports this item, adds that the measures which would have been taken with regular demobilization have been impossible of application in full, but the Demobilmachungsamt has provided for medical examination of soldiers on their discharge; when they are billeted anywhere they have to present a certificate that they have passed this examination. It is reported from Vienna that many soldiers being treated in hospitals for venereal diseases have run away from the hospitals. A large number of dispensaries, open day and evening, have been installed for free treatment of these diseases. The physicians returning from army service have charge of these dispensaries. Notices to the public give directions for reaching the delousing stations.

Medicolegal

Evidence in Action by Physician for Services

(Hobbs v. Hullman (N. Y.), 171 N. Y. Supp. 390)

The Supreme Court of New York, Appellate Division, Third Department, in reversing a judgment obtained by the plaintiff, a physician, for services rendered to the defendant's wife, holds that the nurse in attendance, who was not a registered or professional nurse, was properly permitted to give testimony of conversations between the physician, the defendant and herself as to the patient's condition and its cause. But it was error to permit the plaintiff to go into particulars as to the condition of the patient, and conversations between him and the husband with reference to the patient's condition and its cause. This evidence was inadmissible under Section 834 of the Code of Civil Procedure. This evidence was so clearly within the prohibition of the statute that a judgment influenced by it should not stand. It is against public policy to permit a physician to make such disclosures, even in an action to recover for his services. The evidence was unnecessary, and could have been offered only to prejudice the jury against the defendant, or to coerce him into a settlement. The court cannot say that it did not influence the result.

No Damages for Breach of Contract Endangering Public Health

(Hanford et al. v. Connecticut Fair Association, Inc. (Conn.), 103 Atl. R. 838)

The Supreme Court of Errors of Connecticut holds that there was no error in overruling a demurrer to the defendant's answer in this action brought by the plaintiffs to recover damages for an alleged breach of contract for a baby show to be promoted and managed by the plaintiffs. The court says that each of the two parties was to furnish and do such things as were deemed essential to attract a number of babies to the grounds and buildings controlled by the Fair Association. Presumably the babies were in some manner to be exhibited, and it was expected that at least 120 prizes would be awarded for such excellent and desirable traits as the babies might be adjudged to possess on an inspection and comparison. The defendant in its answer alleged that at the time the disease popularly known as infantile paralysis was epidemic in the city and throughout the state, being so widespread and so serious as to make assemblies of children, and especially young children, highly dangerous to the health of the children of the community, and by reason of these facts it was contrary to public policy to hold a baby show of the nature and at the time provided for in the alleged contract; that the defendant notified the plaintiffs that it wished to cancel the contract for that reason, and thereafter the contract was definitely and finally canceled for the reason named.

It was conceded that if a contract is contrary to public policy it is void. As it was admitted that the holding of a baby show under the circumstances narrated would be highly dangerous to the health of the community, it must follow that such a show would be contrary to public policy. This court is now considering the sufficiency of an allegation, not how that allegation could be proved. The allegation that the baby show would be dangerous to public health might be avoided by the plaintiffs by alleging, if such was the fact, that effectual precautions had been taken to prevent the communication of the disease from one child to another, or by setting up any other fact making it clear that no harm could result to the public from the show. But the court cannot regard the averment that the assemblage of a number of children as proposed would be "highly" dangerous to the public health other than as a fact which the plaintiff must answer, either by denial or matter in avoidance.

The court will not require the performance or award damages for a breach of a contract in which the public has so great an interest as the preservation of health, if the health is in fact endangered, any more than it would require one to be performed the tendency of which was immoral, or which interfered with the right of every one to earn a livelihood by a lawful occupation. The plaintiffs in their brief relied on certain cases which appeared to be actions brought by schoolteachers to recover salary when the schools had been closed by reason of the prevalence of some contagious or infectious disease in the community. But there is a difference between a contract to teach school and one to promote and manage a baby show. Teaching proper subjects can never be unlawful or contrary to public policy, though the assemblage of a number of children in one room might become very harmful. The teacher has usually no control over the attendance in his school. The baby show, however, would be highly dangerous to health, and this was just what the parties had agreed to promote and carry out for their mutual profit.

The plaintiffs contended that the defendant's undertaking was absolute and unqualified. But even though in this case the promise was absolute and unqualified, yet neither party contemplated that the show would be held if the public health would be endangered thereby, and therefore the contract impliedly contained a provision to that effect.

Two members of the court, however, think that the plaintiff's demurrer to the defendant's answer ought to have been sustained on the ground that it did not appear that the holding of this baby show had been prohibited by an order of the county or state health officials.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

January, 1919, **157**, No. 1

Four Cases of Perforation in Cancer of Stomach. J. Friedenwald, and A. McGlannan.—p. 1.
*Prognosis in Heart Disease in Relation to Auricular Fibrillation and Alternation of Pulse. P. D. White.—p. 5.
Modern Aspect of Treatment of Ulcus Ventriculi. I. W. Held and M. H. Gross—p. 8.
*Delay in Treatment of Cancer. C. E. Farr.—p. 34.
Anatomic Changes and Histogenesis in Gastritis Granulomatosa Fibroplastica. G. E. Armstrong and H. Oertel.—p. 35.
*Syphilitic Aortitis: Its Early Recognition. G. E. Brown.—p. 41.
*Adenocarcinoma of Intestine of Unusual Generalization and with Peculiar Cystic Metastases. C. T. Crowdy.—p. 54.
*Value of Ventricular Puncture for Early Diagnosis and Serum Treatment of Posterior Basilar Meningitis. A. Zingher.—p. 58.
Primary Carcinoma of Gall-Bladder; Analysis of Twenty-Three Cases. F. Smithies.—p. 67.
Relation of Pain in Gastric and Duodenal Ulcer to Muscular Activity of Stomach. J. Homans.—p. 74.
*Anatomic Points Determining Direction of Needle and Proper Route For Lumbar Puncture in Children and Adults. J. C. Regan.—p. 83.
*Physiologic Considerations in Immediate Treatment of Dangerous Hematemesis. W. A. Bastedo.—p. 99.
*Diagnosis of Mitral Stenosis. E. H. Goodman.—p. 112.

Prognosis in Heart Disease.—Three groups of 100 patients each, showing (1) pulsus alternans, (2) auricular fibrillation and (3) normal rhythm, have been studied by White with relation particularly to prognosis. A large number of each group has been followed for two or three years and the condition determined at the end of that time. Seventy-four per cent. of the patients with pulsus alternans, 48 per cent. with auricular fibrillation and 47 per cent., with normal rhythm have died. The higher grades of alternation of the pulse carry with them an especially high mortality, nearly 100 per cent., within three years. The cases with auricular fibrillation complicated by aberrant ventricular complexes seem to be very fatal (100 per cent. in the present series); those cases with ectopic ventricular contractions complicating the fibrillation have a mortality almost as high as the total of alternation, while uncomplicated auricular fibrillation has a surprisingly low mortality percentage.

Delay in Treatment of Cancer.—Of 103 cases of cancer considered in Farr's paper the average period from the onset of symptoms to the first consultation with a physician 3.19 months, and the average period from this time unt entrance into the hospital was 8.7 months. This gives a total of 11.89 months, practically a year, in the average cases, from the onset of symptoms to the entrance into the hospital. Of 101 of these cases classified, forty-four patients received good advice from the first physician consulted, forty-seven did not. Farr points out that even if every allowance is made for misunderstanding and ignorance on the part of the patient, the showing is appalling. Obviously, in the average case a considerable period of time is lost between the onset of symptoms and the first visit to a physician, and his advice is wrong in considerably more than half the cases.

Syphilitic Aortitis: Its Early Recognition.—The five cases reported by Brown show the frequency with which specific aortitis is confused with pulmonary disease, and that specific aortitis is not always a late syphilitic manifestation, in one case probably six to eight months after infection. Practically all physical signs may be present and the diagnosis will rest on substernal distress, a positive Wassermann test and the therapeutic test. A positive Wassermann reaction means syphilis, and even in the absence of all outward manifestations of syphilis, Brown says that the aorta should be suspected and active treatment instituted. A negative Wassermann test does not rule out specific aortitis, hence, a luetin test should be performed and the effect of treatment should be studied. When the more gross pathologic changes have taken place, treatment usually is ineffective.

Adenocarcinoma of Intestine with Metastases.—The metastases in the intestinal tract in Crowdy's case had some resemblance to pneumatosis cystoides intestini or intestinal gaseous cysts of swine and man. Metastases were also found in the peritoneal lymph glands, omentum, and hilum of the liver, indicating a dissemination through the peritoneal lymphatics and in this way resembling some cases of tuberculosis. The primary tumor apparently was of intestinal origin.

Ventricular Puncture in Diagnosis and Treatment of Meningitis.—Zingher urges that a prompt ventricular puncture is indicated in cases that show progressive meningeal symptoms and give a dry tap on lumbar puncture. Even less pronounced meningeal symptoms, such as slight but definite bulging of the anterior fontanel, tremors of the extremities and fever should lead to a ventricular puncture in cases that have given repeated dry taps in the hands of an experienced operator. Such early ventricular punctures are of vital importance in the successful treatment of cases of posterior basilar meningitis. In adults the persistence or aggravation of the clinical symptoms, associated with a persistently cloudy spinal fluid, which has become sterile after two or three injections of antimeningitis serum, often indicates the necessity for a ventricular puncture. In these patients, lumbar puncture may show a sufficient amount of spinal fluid; but the outlet from the ventricles is closed off, and the serum injected into the spinal canal does not reach these infected regions.

Ventricular punctures should be repeated daily or every other day; 20 to 50 c.c. of fluid are withdrawn and 15 to 30 c.c. of serum injected by gravity. The serum should be warmed to body temperature and a smaller amount always reinjected than the amount of fluid withdrawn. The interval of time between the punctures and the total number of punctures will depend on the rapidity in the reaccumulation of the fluid, as indicated clinically by the reappearance of a bulging anterior fontanel and on the result of the bacteriologic culture of the ventricular fluid. A lumbar puncture should be made at the time the patient is discharged from the hospital in order to determine the reestablishment of the communication between the ventricular cavities in the brain and the subdural space in the spinal canal. If the baby is breast fed every effort should be made to have the breast feeding continued while the patient remains in the hospital. Occasionally the diagnosis may be assisted in cases giving a dry tap, and before deciding on a ventricular puncture, by making a culture of the nasal discharge and finding the meningococcus present. Zingher states positively that cases of posterior basilar meningitis should be followed up for a period of years to determine the final outcome in those who recover after ventricular punctures and injections of antimeningitis serum.

Proper Method of Lumbar Puncture in Children and Adults.—Regan advises the median route for puncture in both children and adults. By reason of the structure of the lumbar spines in childhood, the only proper method of introducing the needle is in an exactly perpendicular direction to the spine, following in this way the direction of the spinous processes themselves. Any upward inclination imparted is unnecessary and increases proportionately the dangers of a "dry tap." This method of inserting the needle is applicable to children below the age of puberty.

In the adult, as a general rule, if the back can be well flexed, the needle should always be introduced directly perpendicular to the spine at an angle of 90 degrees. This direction will succeed except in a minor percentage of cases. If bone is encountered the instrument is then directed obliquely upward at an angle of 60 to 45 degrees, and this will always be followed by the disappearance of the bony obstruction and the entrance of the needle into the subarachnoid space, except in rare instances. When there is slight opisthotonos and the back cannot be flexed well or the lower limbs drawn up well, owing to rigidity, the spinous processes cannot be separated, and a perpendicular puncture at an angle of 90 degrees is commonly unsuccessful. Under such circumstances it is advisable to insert the needle in an upward direction, usually at an angle of 60 to 45 degrees. In the aged, spinal flexion is more difficult to obtain, hence it is usually advisable in such patients to give the instrument a decided direction upward.

Treatment of Dangerous Hematemesis.—The treatment advised by Bastedo is to have the patient very quiet, lying down, with head low, with a light ice-bag over the stomach and with plenty of fresh air; avoid unnecessary manipulation; give a hypodermic of morphin sulphate, 0.015 gram (one-fourth grain), with strychnin sulphate, 0.002 to 0.003 gram (1/30 to 1/20 grain). Immediately after vomiting give by mouth a solution of thromboplastin, kephalin, coagulen or epinephrin. In a case not of the portal congestion type, if the stomach remains distended and the bleeding seems to persist, perform lavage with tepid water, and follow this by passing in a solution of epinephrin, thromboplastin, kephalin or coagulen through the tube. In portal congestion cases avoid lavage. Prepare early for transfusion, and as soon as there are indications for it transfuse with careful watchfulness. If there is severe exsanguination, bandage legs and arms, raise the foot of the bed, bandage and put weights on the abdomen, keep up body warmth, and furnish fluid intravenously, subcutaneously and by rectum. If transfusion cannot be done, give Locke's or Ringer's solution containing 5 per cent. of acacia intravenously. Finally, have a surgeon at hand to share the responsibility, but do not operate.

To prevent recurrence inject subcutaneously every six or twelve hours for one or two days, 10 to 50 c.c. of human, rabbit or horse serum, or a solution of coagulose or euglobulin, or a single dose of 100 to 500 c.c. of human serum; or inject intramuscularly a solution of coagulen, thromboplastin or kephalin. If recurrence happens, resort to surgery, if necessary, preceding the operation by transfusion, (*a*) after the bleeding has stopped, or (*b*) if the bleeding continues but has become persistently small in amount.

Diagnosis of Mitral Stenosis.—In all thirty-six cases of mitral stenosis were diagnosed from a draft increment of about 15,000, twenty-four being "pure" cases and twelve associated with insufficiency. Of etiologic factors in the twenty-four cases of pure stenosis examined by Goodman, "rheumatic fever," chorea, tonsillitis and growing pains are the most important. In some instances, "rheumatic fever," chorea and tonsillitis appeared together. Cyanosis was observed fourteen times, pallor four times and in six cases the appearance was negative as far as these two phenomena were concerned. A presystolic thrill ending in the characteristic systolic shock was felt twenty-two times. In all of the twenty-four cases a murmur was heard, sometimes not in the erect posture but usually in the recumbent position, and always best in the ventral decubitus. A snappy first sound was heard typically nineteen times; in the five cases in which it was not heard a systolic murmur, accidental or without significance, muffled it. The second pulmonic sound was found to be accentuated over the normal fifteen times; in the nine cases not accentuated a diastolic murmur was heard. Hypertrophy of the heart was found in four cases. Irregularities were found but once, and this was an extrasystolic arrhythmia. The systolic blood pressure was sometimes quite high but the average of the twenty-four cases was 13.2 mm. Hg. The diastolic pressure was 78.

American Journal of Ophthalmology, Chicago

January, 1919, 2, No. 1

Spindle-Like Formations in Inflamed Uveal Tissue of Sympathetic Ophthalmitis. K. Ichikawa.—p. 1.
Congenital Tumor of Cornea of Doubtful Classification. H. H. Stark. —p. 5.
Determination of Minimum Light Sense and Retinal Dark Adaptation with Presentation of a New Type of Photometer. J. W. Downey, Jr.—p. 13.
Common Changes in Regular Astigmia and Their Causes. E. Jackson. —p. 21.
Hypermetropia Responsible for Heterophoria Astigmatism and Myopia. S. M. Payne.—p. 30.
Treatment of Asthenopia in Children. E. R. Williams.—p. 39.
Astigmatism. J. Green, Jr., and W. F. Hardy.—p. 43.
Reconstruction and Re-Education of Disabled Soldiers and Sailors. C. A. Wood.—p. 47.
Efficient Lamp for Eye Operations. F. H. Verhoeff.—p. 53.
Quinin Amblyopia from Rectal Administration. C. S. G. Nagel. —p. 54.
Eye Lesions of Influenza. E. Stieren.—p. 55.

American Journal of Physiology, Baltimore

January, 1919, 48, No. 4

Studies on Submaxillary Gland. Electrical Deflections. R. Gesell. —p. 411.
*Id. Automatic and Bloodless Method of Recording Volume-Flow of Blood. R. Gesell.—p. 428.
Id. Some Factors Controlling Volume-Flow of Blood. R. Gesell.—p. 438.
Id. Comparison of Effects of Hemorrhage and Tissue-Abuse in Relation to Secondary Shock. R. Gesell.—p. 468.
Id. An Automatically Filling and Recording Spirometer. R. Gesell. —p. 507.
Effect of Osmotic Pressure on Excitability of Nerve. R. Shoji.—p. 512.
Luminescence of Watasenia Scintillans (Berry). R. Shoji.—p. 534.
*Experimental Mammalian Polyneuritis Produced by a Deficient Diet. C. Voegtlin and G. C. Lake.—p. 558.

Method of Determining Volume-Flow of Blood.—An automatic and bloodless method of the volume-flow of blood is described by Gesell. The blood, without coming in contact with any foreign substance, is measured as it flows through a large vein, on its way to the heart. This vein, serving as a reservoir, is placed in the trough of the volume-flow recorder. By means of solenoids and electrical contacts operating a cut-off and an emptying-plate, the vein automatically fills and empties, the blood flowing on to the heart. The frequency of filling and emptying varies in direct proportion to the volume-flow of blood and is recorded by a signal magnet in circuit with one of the solenoids. The advantages of the method are said to be: (*a*) by calibration of the vein the procedure is made quantitative without the usual direct measurements of the blood; (*b*) it is automatic and therefore requires very little attention; (*c*) it is bloodless and therefore does not require the use of anticoagulants, and (*d*) it may be used over long periods of time without affecting the general condition of the animal.

Experimental Mammalian Polyneuritis.—The investigation reported on by Voegtlin and Lake aimed *primarily* at the production of deficiency polyneuritis in animals which were closely related to man and which could be used to better advantage in studies on experimental polyneuritis and the physiologic function of the antineuritic vitamin. Experiments were carried out on dogs, cats and albino rats. Cats seemed to respond to a deficient diet with the greatest regularity and for this reason most of the work dealt with this species. The authors succeeded in producing polyneuritis in cats and dogs as the result of an exclusive dietary of lean beef which was heated for three hours at 120 C. in the presence of alkali (sodium carbonate). Proof of this statement is furnished by the symptomatology, treatment and pathology of the disease noted, which are essentially those characteristic of beriberi. The authors are convinced that the disease is due to a deficiency of the diet in antineuritis substance and not to a deficiency in the other essential dietary components (amino acids, fat soluble vitamin, etc.). Exposure of the beef for three hours to a temperature of 120 C., without the previous addition of alkali, does not completely destroy the antineuritic power of this food. It is, therefore, concluded that the ordinary preparation of meat for human consumption does not lessen its food value in this respect.

American Review of Tuberculosis, Baltimore

January, 1919, 2, No. 11

Stereoroentgenograms of Injected Lung as Aid to Study of Lung Architecture. W. S. Miller.—p. 659.
Study of Pulmonary and Pleural Annular Roentgenographic Shadows. H. L. Sampson, F. H. Heise and L. Brown.—p. 664.
*Treatment of Diabetes Complicating Pulmonary Tuberculosis by Allen Fasting Method. H. R. M. Landis, E. H. Funk and C. M. Montgomery.—p. 690.
*Treatment of Laryngeal Tuberculosis by Reflected Condensed Sunlight. C. W. Mills and A. M. Forster.—p. 699.
Pulmonary Conditions Simulating Tuberculosis. J. H. Elliott.—p. 707.

Treatment of Diabetes with Tuberculosis.—The occurrence of diabetes and glycosuria in tuberculosis is, as a general proposition, considered comparatively infrequent by various writers. Among 31,834 cases of tuberculosis, collected from twenty-five tuberculosis sanatoria and hospitals in various parts of the United States, there were 101 (about *one third* of 1 per cent.) cases of glycosuria and fifty-one (about one sixth of 1 per cent.) cases of diabetes. Landis and his associates are convinced that some of the cases classed as glycosurias were undoubtedly diabetes, so that the percentage of diabetics may be assumed to be between one third and one sixth of 1 per cent. of all these tuberculous cases. The combination of diabetes and tuberculosis in the past was sufficient to render an almost hopeless prognosis. The treatment was unsatisfactory because in most instances the tuberculosis was considered paramount and the diabetes less important. Today it is known that it is vitally important to control the diabetes first of all, *at the same time* instituting other measures for the tuberculosis, such as rest, etc., as are compatible with the diabetic treatment. In tuberculosis, where so much is dependent on the ability to take and assimilate a diet of maximum value, the correction of any "specific deficiency in the power of assimilating food" becomes of first importance. The authors believe that it is absolutely necessary to accomplish this before it is possible to treat the tuberculosis effectively.

Twelve cases of pulmonary tuberculosis associated with diabetes were carefully studied. One case was incipient, five were moderately advanced, and six were far advanced. One revealed questionable activity, three slight activity, two moderate activity and six considerable or marked activity. The prognosis in six cases was doubtful and in six unfavorable. In seven of the twelve cases fasting was practiced at the start, in two for five successive days, in four for three successive days, and one for two days before the urine became sugar free. In all of the cases except one, fast days were ordered at various times during the course of the treatment. In five of the twelve cases the urine could be rendered sugar free on a standard carbohydrate-free diet plus various additions to this diet, including a moderate amount of carbohydrates. One patient, however, could be kept sugar free only by ultimately resorting to fasting. Nine of the patients exhibited amelioration in symptoms. In five of the nine cases just mentioned physical signs did not change while the patients were under observation.

As these results stand the authors say that it is possible for patients with tuberculosis and diabetes to partake of a considerably restricted diet over a period of some weeks and still show an increase in weight and strength, a fall in temperature, and a lessening of respiratory symptoms. Rest in bed, *rather than* exercise, as is advised in ordinary diabetics, is necessary because of the tuberculosis; and special care is necessary in order not to increase the fats too rapidly in the desire to bring up the caloric value of the diet, for fear of producing acidosis, as in several of our cases. The treatment is applicable in the presence of recurring hemoptysis, and in every case of tuberculosis of the lungs unless the patient is obviously hopelessly ill with the pulmonary lesion, in which case, the institution of the antidiabetic treatment would add only further discomfort.

Sunlight Treatment of Laryngeal Tuberculosis.—Mills and Forster are very enthusiastic over heliotherapy in laryngeal tuberculosis. The ultraviolet or actinic rays of the spectrum are the ones that produce the beneficial results. These are the chemical rays, the ones that cause tanning of the skin, and that have a bactericidal action. One of their patients worked out the details of this method. He preferred as being most efficient a reflector made of a metallic alloy of aluminum and magnesium. This alloy would reflect a very high percentage of the ultraviolet rays and at the same time absorb many of the heat rays, just the reverse of glass mirrors. The patient sits with his back to the sun. The sunlight is first reflected from a concave metallic mirror into the mouth of the patient, and on a metallic laryngeal mirror held in proper position in the throat. A glass mirror is used to view the larynx, for the purpose of observing that the light is being properly directed. Both the metallic condensing mirror and the glass observation mirror are attached by adjustable joints and supports to a frame, which can be conviently attached to the back of the ordinary chair placed in front of the patient. The patient will usually find it necessary to hold the tongue forward with a gauze handkerchief and must also have a glass of hot water at hand for heating the laryngeal mirror exactly as in ordinary laryngoscopic work. After a little practice most patients readily learn to observe their own larynx and to direct the light on the lesions.

Under the use of this method Mills and Forster have seen obstinate ulcers heal in some cases, infiltrations subside, painful lesions become painless, in fact a steady cleaning up and healing of tuberculous laryngeal lesions. They have not noted any bad effects from the use of this method. Occasionally at the beginning of treatment, they have seen infiltrations break down into small ulcerations, which then proceeded to heal under continued use of the light.

Annals of Medical History, New York

December, 1917, **1**, No. 4

First Printed Documents Relating to Modern Surgical Anesthesia. W. Osler.—p. 329.
Byzantine Medical Fragments. C. Singer.—p. 333.
Legislative and Administrative History of Medical Department of U. S. Army During Revolutionary Period (1776-1786). W. O. Owen.—p. 342.
New York Medical College 1782-1906. A. Jacobi.—p. 368.
Studies in Paleopathology. General Consideration of Evidence of Pathological Conditions Found Among Fossil Animals. R. L. Moodie.—p. 374.
Plague Tractates. D. W. Singer and R. Levy.—p. 394.

Boston Medical and Surgical Journal

Jan. 30, 1919, **180**, No. 5

Industry and Medicine. S. D. Hubbard.—p. 119.
Incidence of Venereal Diseases Among 6,086 men at Camp A. A. Humphreys, Va. I. W. Brewer.—p. 122.
Recent Influenza Epidemic. E. A. Locke, G. E. Ronne and H. Lande.—p. 124.

Georgia Medical Association Journal, Atlanta

December, 1918, **8**, No. 8

Acidosisin Relation to Infections of Air Passages. Report of Forty Cases. A. J. Waring.—p. 151.
Mental Disturbances and Syphilis. L. M. Gaines.—p. 156.
Rôle of Surgery in Digestive Disturbances; Cases. C. W. Roberts.—p. 160.
Ductless Glands in Relation to Eye. E. S. Osborne.—p. 164.
Diabetes and Allen Treatment. W. W. Blackman.—p. 166.

Indiana State Medical Association Journal, Fort Wayne

Jan. 15, 1919, **12**, No. 1

Relation of Pulse Pressure and Kidney Function to Operative Prognosis. J. O. Polak.—p. 1.
Management of Eye Cases by General Practitioner. A. L. Marshall.—p. 4.
Anesthesia in Curriculum and Clinic. W. D. Gatch.—p. 6.
*Cesarean Section and Obstetric Operations Under Nitrous Oxid-Oxygen Anesthesia. E. I. McKesson.—p. 8.

Obstetric Operations Under Nitrous Oxid-Oxygen Anesthesia.—Nitrous oxid and oxygen is looked on by McKesson as being an ideal anesthetic for obstetric operations. The advantages are: (1) Its transient effect, when removed, permits almost immediate resumption of normal labor; (2) its lack of depression on uterine and other muscle when properly administered; (3) its safety to mother and child; (4) the means at hand for perfusing the child with oxygen through the mother while the cord pulsates, factors which, McKesson says, should decrease fetal and maternal mortality and morbidity in operative obstetrics.

Iowa State Medical Society Journal, Des Moines

Jan. 15, 1919, **9**, No. 1

Epidemiology of Pneumonia. J. H. Hamilton.—p. 4.
Experimental Study of Intestinal Obstruction. J. T. McClintock, L. R. Dragstedt and C. A. Dragstedt.—p. 8.
Diagnosis and Treatment of Peptic Ulcer. J. T. Strawn.—p. 11.

Journal of Biological Chemistry, Baltimore

January, 1919, **37**, No. 1

Phosphorus and Calcium Metabolism as Related to Milk Secretion. E. B. Meigs, N. R. Blatherwick and C. A. Cary.—p. 1.
Physical Properties and Chemical Composition of Human Amniotic Fluid. D. Uyeno.—p. 77.
*Urea Formation by Placenta. E. S. Hammett.—p. 105.
Maximum Production of Glutamine by Human Body as Measured by Output of Phenylacetylglutamine. C. P. Sherwin, M. Wolf and W. Wolf.—p. 113.
Behavior of Sudan III In Animal Organism. B. E. Read.—p. 121.
Globulins of Jack Bean, Canavalia Ensiformis. J. B. Sumner.—p. 137.
Do Seedlings Reduce Nitrates J. Davidson.—p. 143.
Globulin of Cocoanut, Cocos Nucifera. C. O. Johns, A. J. Finks and C. E. F. Gersdorff.—p. 149.
Supplementary Relationships Between Proteins of Certain Seeds. E. V. McCollum, N. Simmonds and H. T. Parsons.—p. 155.
*Case of Metabolism in Multiple Exostoses. V. K. Krieble and O. Bergeim.—p. 179.
*Vitamins in Green Foods. T. B. Osborne and L. B. Mendel.—p. 187.
Influence of High Temperatures and Dilute Alkalies on Antineuritic Properties of Foods. A. L. Daniels and N. I. McClurg.—p. 201.

Urea Formation by Placenta.—It is evident from Hammett's observations that the placenta can form urea under certain circumstances. The processes leading up to this product are in question. Whatever the source of the urea found to be formed by placenta tissue, these results give evidence that this organ, as well as being excretory in function, is also actively concerned in the preparation of the nitrogenous by-products of the fetus for excretion. It is Hammett's idea that the fetus is only faintly able, if at all, to perform for, of, and by itself the functions of preparing its nourishment in assimilable form, or of breaking down its by-products into compounds ready for excretion; and that the placenta is interposed between mother and fetus to remove as far as possible these extra burdens from the maternal organism.

Metabolism in Multiple Exostoses.—A study was made by Krieble and Bergeim of the metabolism in a case of multiple exostoses. A loss of nitrogen was noted and ascribed, in part, to the associated hypermotility of the intestine. A retention of sulphur was observed and attributed to storage in the growing cartilage. The retention of phosphorus, calcium, and magnesium appeared to be within normal limits as did also the percentage excretion of these elements by way of the urine. These findings do not support the view of a relationship of this disorder to rickets or to any primary disturbance of general metabolism.

Vitamins in Green Foods.—Osborne and Mendel suggest that the green vegetables supply an important addition to the diet of man because the staples such as cereals, meats, potatoes, fats and sugar probably furnish *too small* an amount of either of these vitamins to meet fully the requirements of an adequate dietary. Therefore, care should be taken not to reduce greatly the quantity of green vegetables customarily eaten until more is learned about the actual requirements for these food factors and their relative abundance in the commonly used vegetables and green foods. Only then will it be safe to apply the results obtained in the laboratory to attempts to effect economies in the use of these relatively expensive food products.

Journal of Immunology, Baltimore

November, 1918, 3, No. 6

Active Immunity in Experimental Poliomyelitis. H. L. Abramson and H. Gerber.—p. 435.
Experimental Pollinosis. Preliminary Report. H. L. Ulrich.—p. 453.
*Prompt Macroscopic Agglutination in Diagnosis of Glanders. O. R. Povitzky.—p. 463.

Agglutination in Diagnosis of Glanders.—Povitzky has worked out a modification by which an agglutination reaction, clear cut in appearance, can be obtained in less than two hours with positive serum in dilutions up to 1:2,000 or higher. The strain of *B. mallei* used was isolated from a case of human glanders. The medium which has given the most satisfactory results is potato-glycerin-veal agar that is 2.5 per cent. acid to phenolphthalein. The test has been found valuable in the routine examination of horses. With this test nearly all early and acute cases can be detected and thus the spread of the disease can be prevented. The whole technic is described in detail.

Journal of Medical Research, Boston

November, 1918, 39, No. 2

*Case of Mucor Infection. H. C. Ernst.—p. 143.
*Study of Experimental Organizing Pneumonia. A. B. Wadsworth.—p. 147.
*Brom Cresol Purple and Litmus as Indicators for Classification of Tubercle Bacilli. L. Frothingham.—p. 153.
Studies of Uranium Poisoning. Toxicity of Certain Water-Insoluble Salts of Uranium. H. T. Karsner, and S. P. Reimann.—p. 157.
Id. Solubility of Uranium Oxide in Artificial and Human Gastric Juice. H. T. Karsner, S. P. Reimann and S. C. Brooks.—p. 163.
Id. Question of Renal Tissue Affinity for Uranium. H. T. Karsner, S. P. Reimann and S. C. Brooks.—p. 169.
Id. Relation of Acid Intoxication to Nephritis. H. T. Karsner, S. P. Reimann and S. C. Brooks.—p. 177.
*Behavior of Organs After Transplantation in Rat; Power of Resistance of Constituents of Various Organs. L. Loeb.—p. 189.
*Simple Method of Carrying Meningococcus Cultures. J. Bronfenbrenner and M. J. Schlesinger.—p. 217.
Effects of Quartz Ultra-Violet Light on Rate of Division of Paramecium Caudatum. W. T. Bovie and D. M. Hughes.—p. 223.
Effects of Fluorite Ultra-Violet Light on Rate of Division of Paramecium Caudatum. D. M. Hughes and W. T. Bovie.—p. 233.
An Approximation of Value of Absorption Index of Fluorite Rays in Protoplasm. W. T. Bovie.—p. 239.
Localization of Physiological Effects of Radiation Within the Cell. W. T. Bovie.—p. 251.
*Micro Plate for Study of Bacterial Activity. J. Bronfenbrenner and M. J. Schlesinger.—p. 267.
Physiologic Action of Radiation. W. T. Bovie.—p. 271.

Case of Mucor Infection.—The history of this patient was suggestive of pulmonary tuberculosis, but examination of the sputum disclosed a mucor. The man was a farmer, hence Ernst suggests that the infection may have been occupational as has been suspected in other cases; that is, from corn, on which the mucor finds a favorable medium for growth. The infectious character of the organism is shown by the appearance of a slow chronic abscess in the peritoneal wall of a guinea-pig, following an injection with an emulsion from a pure culture of the mucor.

Experimental Organizing Pneumonia.—Investigations were made by Wadsworth for the purpose of ascertaining, if possible, why one case of pneumonia should resolve, another continue unresolved, and still another undergo organization. Inasmuch as secondary infection might be conceived as a determining factor in organizing pneumonia, Wadsworth made a study of the lesions of human cases of organizing pneumonia to determine, so far as was possible by morphological and cultural study alone, the bacterial factors concerned. Following this, a series of experimental studies in dogs by tracheal injection of the lungs were made of the action of the pneumococcus alone, of the staphylococcus alone, and then especially of the action of the pneumococcus associated with the staphylococcus. The pneumococcus in pure culture gave rise in the dog to exudative processes which in all respects resembled those of man, and which, like those of man, underwent complete resolution leaving little or no trace of the disease. The staphylococcus in pure culture gave rise to circumscribed areas of bronchopneumonia in which resolution was delayed or was followed by some interstitial bronchial pneumonia. It was only in the diffuse exudative lesions of the dog's lung incited by the pneumococcus and the staphylococcus together that resolution was regularly delayed and typical lesions of intra-alveolar organization were seen.

Differentiation of Tubercle Bacilli.—From Frothingham's experiments it seems that brom cresol purple and litmus may be valuable indicators for differentiating types of tubercle bacilli.

Organs After Transplantation.—An intensive study was made by Loeb of many kinds of tissue and his findings are very interesting. The original article should be consulted. On the whole, Loeb says, the simpler structures survive after transplantation. The transplantation represents, in some respects, a struggle for existence between tissues, and this struggle leads to a selection of the more resistant tissues. This selective action is mainly responsible for the ultimate structure of transplants.

Method of Carrying Meningococcus Cultures.—Bronfenbrenner and Schlesinger succeeded in rendering liver-agar uniformly suitable for the growth of meningococcus cultures. The preparation of the medium is as follows: (1) Make a liver infusion using 1,000 gm. of fresh beef liver to every 1,000 c.c. of water (double strength). Collect the extract through a single layer of cheesecloth. Boil for five minutes, stirring continuously. Do not adjust the reaction. Strain through a single layer of cheesecloth covered with a thin layer of cotton. Sterilize at 10 pounds' pressure for ten minutes. (2) Make a three per cent. agar solution in water. Filter through cotton. Add 2 per cent. peptone and 1 per cent. sodium chlorid. Do not adjust the reaction. Sterilize at 15 pounds for thirty minutes. Primary meningococcus colonies grow very rapidly on such a medium, which is very important in searching for carriers. Pure cultures may be kept alive on slopes of this medium for several weeks by inoculating the water of condensation and tilting the tube every day or two.

Micro Plate for Bacteria Cultures.—In order to reduce to a negligible quantity the amount of medium used, Bronfenbrenner and Schlesinger substituted cultures in drops of medium for test tubes. This procedure does away with the necessity of using individual tubes for each test. The result is a great economy of time and labor formerly spent in washing, plugging, filling and sterilizing glassware. Furthermore, the micro plate simplifies the manipulations involved in a number of bacteriological and biochemical tasks to such a degree that even a slightly trained laboratory assistant can perform reliably a greater volume of work in a given time than a highly trained worker can do by means of "standard" technic.

Maine Medical Association Journal, Portland

January, 1919, 9, No. 6

Treatment of Peptic Ulcer; Report of Fifty Cases. R. F. Chase.—p. 133.
Chronic Gastric Lesions. B. L. Bryant.—p. 144.

Medical Record, New York

Feb. 1, 1919, 95, No. 5

*Medical vs. Surgical Treatment of Cancer. L. D. Bulkley.—p. 177.
*Oxygen Tension in Its Relation to Meningococcus. J. H. St. John.—p. 184.
Possibility of Protein Split Product Poisons Being Formed in Market Milk. J. M. W. Kitchen.—p. 186.
Deaths By Poisons in Cook County, Illinois, During Period 1905-1917. W. D. McNally.—p. 189.
Mind and Its Abnormalities. B. Lemchen.—p. 192.

Medical Treatment of Cancer.—Abstracted in The Journal, Jan. 25, 1919, p. 310.

Oxygen Tension in Its Relation to Meningococcus.—The experiments reported on by St. John suggest that the retention of moisture in the medium used for the cultivation of the meningococcus is probably a more important factor than the oxygen content of the incubation atmosphere. It is not necessary, however, to cultivate the meningococcus in closed containers, as the same end-result is obtained by giving more consideration to the water content of the medium and to the prevention of surface evaporation during incubation. This latter may be accomplished by exposing the incubator air to large surfaces of water placed in shallow pans. This simple procedure has been adopted by the Army Medical School, and better cultural results are obtained.

Nebraska State Medical Journal, Norfolk

January, 1919, **4**, No. 1

Injuries of Nervous System. G. A. Young.—p. 1.
Traumatic Neuroses. F. E. Coulter.—p. 4.
Improvements in War Surgery of Nervous System as Applied to Civil Practice. J. E. Summers.—p. 9.
Some "Whys" of Conjugally Conjugated Syphilis of Nervous System. S. G. Burnett.—p. 14.
Roentgen Ray in Diagnosis of Bone Pathology. A. P. Overgaard.—p. 18.
Roentgen Diagnosis of Intrathoracic Lesions. C. H. Ballard.—p. 23.

New Orleans Medical and Surgical Journal

January, 1919, **71**, No. 7

Local Anesthesia for Operations for Goiter. A. A. Keller.—p. 305.
Epidemic Meningitis. Types of Meningococci and Transmission of Disease. C. W. Duval.—p. 312.
Diagnosis Method, Treatment and Prophylaxis of Malaria as Conducted in the Sanitation of Brioni, Istric (Austria), in 1899 to 1902. D. Rivas.—p. 322.

United States Naval Medical Bulletin, Washington

January, 1919, **13**, No. 1

Heart Sounds and Their Value. H. A. Hare.—p. 1.
Eliminating Epileptic from Navy. L. E. Bisch.—p. 5.
*Use of Serum in Lobar Pneumonia. E. W. Gould, and M. Shaweker.—p. 16.
Diagnosis and Treatment of Pneumonia and Empyema at U. S. Naval Hospital, Newport, R. I., F. A. Asserson and W. L. Rathbun.—p. 26.
*Development of Specific Serum Therapy in Pneumonia. W. R. Redden.—p. 35.
Flat Foot, New Statement of Old Truth. L. R. G. Crandon.—p. 43.
Present Status of Treatment of Flat Feet. S. B. Burk.—p. 46.
Ear Protection. G. B. Trible, and S. S. Watkins.—p. 48.

Use of Serum in Lobar Pneumonia.—Gould and Shaweker believe that they have seen some good results from the use of serum in the Type I cases of pneumonia, but they do not overestimate the results. In all cases the serum was given by the gravity method in high dilution at or slightly above the patient's temperature. The apparatus used is described in detail.

Development of Specific Serum Therapy in Pneumonia.—Redden claims that the etiologic factor in 98 per cent. of all lobar pneumonias is the pneumococcus. Eighty per cent. fall serologically into three groups called fixed Types I, II, III. Two is further subdivided into a, b and x. The remaining 20 per cent. is called Group IV and is made up of numerous distinct races. Group IV may be found in 80 per cent. of normal mouths. But the fixed types are found only in the mouths of those recently ill with such a type or in one who has been in contact with such a type case. This points to carriers of the fixed types as the chief epidemiologic factor. About 38 per cent. of all cases are Type I; about 30 per cent. of all cases are Type II; about 11 per cent. of all cases are Type III. Against Type I an immune serum has been produced which reduces mortality by three fourths. Against Type II a less potent serum which reduces mortality by about one half has been produced. The authors insist that all cases of pneumonia should be typed as early as possible in order to give patients the benefit of antiserum, if of Type I or II. Practically all cases which fall into these two groups can be given serum without danger. Even if one of the Type I cases shows sensitiveness to the serum, an attempt should be made to desensitize in order to make Serum I available. Serum should be given as early as possible and in 100 c.c. amounts at eight-hour intervals for at least three doses, intravenously.

Probably the action of the growing pneumococcus plays an important part in producing the local lesion. Grouping not only makes serum therapy available but aids in prognosis, the order of increasing mortality being IV, I, II, III. Experience points to crowded quarters, exposure to severe weather, and devitalizing labor as important predisposing factors in the development of the disease.

Washington Medical Annals

January, 1919, **18**, No. 1

Case of Acquired Syphilis in Boy of 13 Years. R. M. LeComte.—p. 4.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, Journal of Neurology, London

September, 1918, **41**, No. 2

*Sensation and Cerebral Cortex. H. Head.—p. 57.

Sensation and Cerebral Cortex.—In this article of about 200 pages, Head discusses the following topics: (1) The integration of afferent impulses; (2) the forms assumed by disturbances of sensation due to lesions of the cortex; (3) subcortical lesions; (4) tests which appeal to the cortex and to the optic thalamus; (5) hypotonia; (6) the principles which determine anatomical localization of sensory functions in the cortex. A short account is given of some of the cases on which this research is based.

British Medical Journal, London

Jan. 11, 1919, **1**, No. 3028

*Use of Arsenic in Syphilis. W. T. Lockhart and J. R. Atkinson.—p. 33.
*Agglutinative and Opsonic Action. C. J. Bond.—p. 35.
Cancer of Tongue. D'Arcy Power.—p. 37.
Case of Acute Febrile Polyneuritis. R. W. D. Hewson and R. M. Stewart.—p. 38.
*Streptococcal Invasion of Cerebro-Spinal Fluid. C. J. Marshall.—p. 40.
Influenza Epidemic in Q. M. A. A. C. Hostel, Edinburgh. A. M. Watson.—p. 40.
*Vaccine Treatment of Influenza. R. E. Tottenham.—p. 41.
A New Ulnar Splint. S. A. Moore.—p. 41.

Administration of Arsenic in Syphilis.—The use of concentrated solutions of arsenical preparations in the treatment of syphilis is endorsed by Lockhart and Atkinson. Among 2,859 intravenous injections, there has not occurred a single case of thrombosis of the vein. There have been no early reactions of an anaphylactic character. There have been no reactions, late or early, which could be attributed to the method of administration. Owing to the small size of the needle the pain of introduction is less than where the larger needle required by the gravity apparatus is used and much smaller veins may be successfully entered. On three or four occasions the vein has been missed or completely penetrated, and solution has been injected into the surrounding tissue. This accident causes a good deal of pain, swelling, and disability, which, however, pass off in a few days without abscess formation or permanent induration. A microscopic examination of blood withdrawn from the vein into the syringe containing the arsenic solution shows the blood cells apparently perfectly normal even some hours after withdrawal. One hundred and forty-one patients were discharged from the hospital as outpatients during one month with their external lesions soundly healed. The average duration of their stay was sixteen days. They return for treatment as outpatients at weekly intervals until the full course is completed.

Agglutinative and Opsonic Action.—In order to determine whether the agglutination of red blood cells can be accomplished by the use of chemical reagents, Bond tested a considerable number of substances. The reagents which have so far given the best results have been liquid paraffin and a 5 per cent. solution of gum acacia in normal saline. Liquid paraffin, when used as a dressing for wounds, seems to favor phagocytosis and to promote the separation of necrotic tissue. Examination of the pus cells recovered from gauze soaked in 5 per cent. gum solution when used as a dressing for wounds also shows a high percentage of living phagocytes. Many other chemical substances, of course, when added in certain proportions to a suspension of washed red cells in saline, bring about a clumping which cannot be distinguished under the microscope from the agglutination produced by serum. Among antiseptic reagents, acriflavine, 1 per thousand solution in normal saline, gives this result in a striking manner. In the case of most antiseptic substances, however, the cells undergo rapid injury and eventual disintegration. This does not occur with gum solution and liquid paraffin.

Apart from its action on disintegrated cells, previous agglutination by paraffin or gum solution also opsonizes whole red cells under certain conditions. Washed sheep's red cells when present in considerable quantity are more toxic to the leukocytes of certain individuals than to those of others. If, however, these washed sheep's red cells have been previously shaken up with gum solution or liquid paraffin before incubation the leukotoxic effect is largely prevented. A mutual adhesion occurs between the red cells and the phagocytes and a number of red cells are ingested.

Some reagents, like mercury perchlorid, which, in dilute solution, agglutinate red cells, are themselves toxic to the leukocytes. Others, like acriflavine, which, in dilute solution, are not markedly leukotoxic, do not seem to promote the ingestion of the red cells. It is a suggestive fact that those reagents which do promote the ingestion of red cells by leukocytes, for example, liquid paraffin and dilute gum solution, are mostly inert substances; they both, in different degrees, protect the shed leukocytes from rapid devitalization. They both affect the density of the serum and alter the surface tension of the cell bodies which they envelop. They are not erythrocidal or hemolytic in character. Thus a 5 per cent. gum solution in normal saline agglutinates washed red cells, but cells so agglutinated are not disintegrated, they can be washed free of the agglutinin in normal saline, and can then be reagglutinated by the gum solution. Reagents, on the other hand, which hemolyze and destroy the red cells prevent ingestion, possibly because they bring about a rapid diffusion of the liberated endotoxin in sufficient volume to poison the leukocytes. These observations suggest that the phenomena of hemagglutination, as it affects the cellular elements of the blood, should be described in terms of both red and white cells.

Streptococcal Invasion of Cerebrospinal Fluid.—Six weeks after an ischiorectal abscess had healed, Marshall's patient began to have pain and stiffness in the neck. There was no antecedent trauma, and no account of personal or family tuberculosis. The left posterior cervical region was swollen, tense, and hot. Fluctuation could not be made out. The greatest tenderness was just to the left of the ligamentum nuchae in its lower part. The perineum revealed the scar of a boil. Rectal examination showed no induration to suggest tuberculosis. No active focus of infection was found. A muscle-splitting approach was adopted. Beneath the deepest layer was found an abscess under great tension; some 25 c.c. of thick creamy pus escaped, and at the bottom of the cavity was felt the bare roughened lamina of the fourth cervical vertebrae; a probe cautiously introduced was felt to pass completely around it. The release of tension caused considerable oozing. This was arrested by light packing, and the next day Carrel-Dakin treatment was established. The bone lesion was sterilized in fourteen days and gave no further trouble; slight and temporary stiffness of the neck resulted. The pus gave on culture streptococci and staphylococci; no tubercle bacilli.

Vaccine Treatment of Influenza.—Tottenham reports on the use of an influenza vaccine consisting of *B. influenzae*, 60 million; streptococci, 80 million; pneumococci, 200 million per c.c., as a curative treatment in all cases of influenza. On admission, the patient is given 0.112 c.c. of the vaccine; forty-eight hours later this dose is repeated, and afterward as often as necessary, at intervals of forty-eight hours. After the first dose the quantity of the vaccine may be increased, but this depends on the reaction to the previous dose. The treatment has been attended with success.

Glasgow Medical Journal

December, 1918, **90**, No. 6

Tuberculosis: Moro's Percutaneous Inunction Test, and Von Pirquet's Cuti-Reaction Test. J. W. Allan.—p. 321. To be continued.
Some Medicines of Our Ancestors. J. F. Fergus.—p. 332.

Indian Medical Gazette, Calcutta

December, 1918, **53**, No. 12

Influenza in Bombay. E. S. Phipson.—p. 441.
Treatment of Baghdad Boils by Ionization. T. G. Evans.—p. 448.
Simplified Technic for Agglutination-Reactions. (Widals). R. Hayes. —p. 449.
Polyneuritic Psychosis: Korsakoff's Syndrome. W. L. Forsyth.—p. 451.

Journal of Laryngology, Rhinology and Otology, London

January, 1919, **34**, No. 1

*Warfare Injuries of Larynx. W. D. Harmer.—p. 2.
War Neuroses of Larynx and Speech Mechanism. H. Smurthwaite. —p. 13.
After-Treatment of Aural and Nasal Operations. G. Wilkinson.—p. 20.

War Injuries of Larynx.—Harmer analyzes 245 cases. He calls special attention to the frequency of paralysis of the vocal cords after gunshot wounds of the neck. Appearing immediately after the wound, it is generally abductor in type in the early stages. There is little doubt in Harmer's mind that shock is chiefly responsible, for the following reasons: (1) The large number of cases reported. (2) Paralysis of other cervical nerves (excluding brachial plexus) are comparatively rare. (3) Other nerves are known to be paralyzed by shock. (4) Paralysis of the recurrent has occurred several times after ligature of carotid aneurysms, and is well known in many other operations of the neck. (5) Paralysis of the brachial plexus is common after wounds of the neck, and all its trunks are generally involved rather than one, as would occur if a direct injury were responsible. The mortality from wounds of the larynx is high.

In 512 cases of neck wounds, mostly treated in France, there were thirty-one deaths, two of which had received injuries to the larynx. On the other hand, 1,873 neck wounds were treated in English hospitals during the same period with only seventeen deaths. Of these 110 received injuries to the larynx and only one case ended fatally. These figures prove that the mortality is much greater at the front than at the base. In two thirds of the gunshot injuries of the larynx that survive for more than a week recovery is complete, and no ill effects are produced beyond alteration of the voice.

Journal of State Medicine, London

January, 1919, **27**, No. 1

Prevention of Venereal Disease and Abortive Treatment of Gonorrhea. L. W. Harrison.—p. 1.
Town Planning in Its Relation to Public Health. S. D. Adshead. —p. 13.

Lancet, London

Jan. 11, 1919, **1**, No. 2

*Shell Shock. C. S. Myers.—p. 51.
*Incidence of Endameba Histolytica. H. A. Baylis.—p. 54.
Analysis of Composite Neurosis. F. Dillon.—p. 57.
*Prevention and Treatment of Diabetic Coma. J. P. Cammidge.—p. 60.
Agglutinins in Malta Fever. L. T. Burra.—p. 64.
Case of Aspirin Poisoning. F. W. Lewis.—p. 64.
Case of Strangulated Femoral Hernia. S. M. Lawrence.—p. 64.

Hypnosis in Shell Shock.—The value of hypnosis in the treatment of shell shock is extolled by Myers. He urges that this treatment be given more extended trial.

Endameba Histolytica Carriers.—Among 400 healthy recruits in the Britsh navy from all over the British Isles, Baylis found that ten were carriers of *Endameba histolytica*. Of these, eight had never been out of the British Isles, and seven at least had never had dysentery. Experiments on kittens were tried with a view to obtaining evidence of the pathogenicity of the strains of cysts from the "new entries." The kittens failed to become infected, but this is not regarded as evidence for the nonpathogenicity of such strains.

Prevention and Treatment of Diabetic Coma.—This subject is reviewed by Cammidge, and he emphasizes the fact that treatment directed to one cause is not likely to control the symptoms, at any rate, more than temporarily, and that the only "cure" is to prevent all possible causes by so arranging the diet that (1) the patient's tolerance for carbohydrate, protein, and fat is not exceeded; (2) the total load of food is within his metabolic capacity; (3) the diet is correctly balanced, and (4) a sufficient allowance of inorganic salts is provided. The earlier in the course of the disease such treatment is commenced the better are the results likely to be and the less difficult will it prove to arrange a diet fulfilling the necessary conditions, but even with advanced cases a surprising improvement can be effected by careful dieting along these lines.

If speedy improvement does not follow these measures, alkaline injections should be tried. Small uncontrolled doses are useless; the only method likely to be of much avail is to employ massive doses and regulate their administration by repeated examinations of the blood by Sellards' method or by estimations of the carbon dioxid content of the alveolar air. The injections should be continued until it is clear that any acidosis, whether due to the diabetic condition or to uremia, has been neutralized by a return to normal of the titratable alkalinity of the blood or of the carbon dioxid content of the alveolar air. The copious diuresis that follows large intravenous injections will tend to eliminate other toxins, and bleeding from the opened vein to the extent of 10 or 20 ounces will also help in that direction. In most cases of coma a dose of bicarbonate of soda approaching 150 to 200 gm. (5 to 7 ounces) will most likely be required. It is dangerous to introduce this amount into the circulation at one dose, and the maximum that should be attempted is 50 to 60 gm., in the the form of a liter of a 5 to 6 per cent., solution, or 1½ ounces of sodium bicarbonate in 30 ounces of water. The solution should be sterilized, if possible, but precautions should be taken to prevent the formation of the caustic normal carbonate, which readily occurs on boiling. The solution should be injected by the gravity method very slowly, half to one hour being allowed for a liter, and it should be kept at or about the temperature of the body. It is usually necessary to repeat the injection in about six hours, and if need be it may be repeated again after twelve and eighteen hours. Cardiac stimulants are advisable at an early stage in all cases of coma or threatened coma. Digitalis, subcutaneously or by mouth, is probably the best, but strychnin, caffein, alcohol, ether, camphor, ammonia, and pituitary extract may also be useful. There is a natural disposition to administer oxygen to relieve the distressing symptoms of air hunger, but it is a useless procedure, except for the mental effect on those who are watching, for the difficulty in respiration has been proved not to be due to lack of oxygen.

Medical Journal of Australia, Sydney

Dec. 14, 1918, **2**, No. 24

One of the Problems of Peace: Mental Deficiency. R. J. A. Berry. —p. 485.
Two Cases of Primary Pneumococcal Meningitis. G. H. Burnell.—p. 490.
Perforating Injury of Both Eyes. J. L. Gibson.—p. 492.

Practitioner, London

January, 1919, **102**, No. 1

Influenza. R. D. Powell.—p. 3.
*Disinfection of Railway Carriages, Public Vehicles and Dwelling-Rooms. D. Duckworth.—p. 5.
Influenza From a Public Health Standpoint. A. Newsholme.—p. 6.
*Influenza as it Affects Air-Passages. S. Thomson.—p. 12.
*Cardiac Complications of Influenza. J. Mackenzie.—p. 19.
*Influenza From Clinical Standpoint. J. Moore.—p. 26.
Psychoses of Influenza. G. H. Savage.—p. 36.
Epidemic Influenza. S. West.—p. 44.

Disinfection of Railway Carriages, Public Vehicles and Dwelling Rooms.—For so-called prophylactic remedies in influenza, Duckworth has more faith in the action of quinin than in any other drug. He is convinced of the value of douching the head and face with water (as hot as can be borne) in cases of distressing influenzal headache associated with sinusitis. The relief afforded is, he says, very noteworthy. Duckworth recommends the adequate disinfection of railway carriages, public vehicles and dwelling rooms which patients, suffering from influenza, have been using.

Influenza as it Affects Air Passages.—The use of sprays or lotions during the acute stage of an influenzal sinusitis is, held to be harmful by Thomson because they are apt to disseminate the infection, and there is the risk of their carrying it to the ear. The routine use of a saline or alkaline nose lotion is uncalled for. It is better to prescribe menthol, one-half dram; tincture of eucalyptus, 3 ounces. A teaspoonful of this is put in a pint jug of steaming water, and the vapor is inhaled up and down the nose every two or three hours. It generally relieves pain, it frequently stimulates a free discharge and patients are satisfied that it "clears the head." Relief to the frontal and sphenoidal sinuses may be secured by packing the neighborhood of the middle meatus for a few minutes every day, with a pledget of cotton soaked in cocain (5 per cent.) and epinephrin. When the acute stage is past, a simple alkaline nose lotion may be employed. The inflammatory troubles of the pharynx and larynx are treated on ordinary principles.

Cardiac Complications of Influenza.—The principles of treatment suggested by Mackenzie for these cases should be devoted to increasing the health of the body, as a whole, in such a way as to increase the natural resistance to infection, to eliminate toxic influences, and brace up the whole man bodily and mentally. The best way to achieve this is by fresh air and judicious exercise in the fresh air. When all fever has subsided, MacKenzie encourages the patient to get up and go about quietly, leaving it to the patient to stop any exertion that produces fatigue. As he improves, the form of outdoor exercise which gives most pleasure is recommended. Injudicious exercise may do harm, but there is one precaution of a very simple kind which suffices to prevent any danger, and that is to instruct the patient to indulge only in an exercise so long as it gives pleasure and causes no distress or discomfort, and to stop or slow down as soon as the sense of exhaustion, breathlessness, or pain is experienced.

Influenza from a Clinical Standpoint.—A word of warning is given by Moore in regard to prescribing alcoholic stimulants in influenza. He says that the mental state in this malady is so excitable, so unstable, so impressionable, so neurotic, that the seeds of intemperance may be sown by following the unthinking advice to take wine or spirits as a stay in weakness. Moore is convinced that alcoholic stimulants are, generally, not only unnecessary but positively harmful in the treatment of influenza. If ordered at all, they should be given with, or in, food, and only for a limited time like any other powerful drug. In the septic bronchopneumonia, so often met with of late, "turpentine punch" proved a valuable remedy. Ten drops of turpentine on a lump of sugar (when it was possible to get it) added to a wineglassful of ordinary whisky-punch, was the form in which this antiseptic stimulant was exhibited.

Bulletin de l'Académie de Médecine, Paris

Dec. 24, 1918, **80**, No. 51

*Rehabilitation of Crippled Soldiers. Gourdon.—p. 632.
Colloidal Treatment of Influenza. A Rémond.—p. 635; Trapenard.—p. 636
Encouraging Results with Vaccine Therapy of Dysentery. F. Rathery, Ranque and Raux.—p. 636.
*Mirror Writing. C. Mirallié and Denês.—p. 638.
*Preparing Orbit for Artificial Eye. F. Lagrange.—p. 641.

Resumption of Work by War Cripples.—Gourdon reviews the experiences at Bordeaux with 5,104 disabled soldiers under training for self-support. *Only thirty-four* were so severely crippled from loss of both arms and legs or both arms, that they were incapable of any work. Among the 30 per cent., of the others who were severely crippled in the arms, 37 per cent. had to learn a new trade or *readapt* themselves to their old trade. *This was the case only in* 23 per cent. *of the men crippled* in the legs. The men sometimes rebel against the effort to learn a new trade or business. This makes it specially necessary for the rehabilitation of *the crippled to be entrusted to competent* physicians and technicians whose advice will inspire confidence, and the example of reeducated cripples will encourage and inspire them. Special training schools for men crippled *in the arms* are indispensable; in ordinary trade schools where they compare their work with that of their sound mates they are apt to lose all their courage. Fully 62 per cent. of all the maimed were agriculturalists, and 85 per cent. of the farmers spontaneously resumed their *farm* work, but only 48 per cent., of the agricultural laborers. It is important in farm work to supply a jointed foot to the amputated, as this *does not* sink into the soft ground. Farm work is particularly advisable after trephining of the skull. These men are liable to be incapable *of* concentrating their attention for long at a time, and work in the fields gives them the peace and quiet which they require. Men crippled in the legs fall short of the turnout of the normal only by about 10 per cent. But these crippled in the arms can produce only from 35 to 80 per cent., of the normal turn-out. The great majority of the crippled can thus be trained for manual labor, reserving the commercial and administrative occupations for a small number prepared for them by their previous education. Partial amputation of the fingers or hand interferes very little with manual work. Long forearm stumps can be used without difficulty in a certain number of occupations. High amputation of the forearm or upper arm renders manual work difficult, and it is quite impossible after disarticulation of the shoulder.

Mirror Writing.—Mirallié and Denès report that a woman stricken suddenly with right hemiplegia and motor aphasia began at once to write with the left hand, beginning at the right side. Her writing was thus of the mirror type, and she never noticed that it was not her usual way of writing. Figures as well as words and phrases were of this mirror type, but when she added or subtracted figures, she began at the correct point, at the right. They regard the case as confirming the view that mirror writing is the normal form of writing with the left hand.

Preparation of Orbit for Artificial Eye.—Lagrange cuts a flap, about 2 mm. thick and 6 or 7 cm. wide by 7 or 8 cm. long, in the subcutaneous adipose tissue of the temple. This oval flap with a broad pedicle is utilized to fill up the cavity left in the orbit after enucleation of the eyeball. The flap can be worked under the conjunctiva or not as desired. The rectus muscles can be sutured together to hold it in place.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 25, 1918, **42**, No. 32

*Comparative Percussion. P. J. Ménard.—p. 973.
*Treatment of Influenza. A. Pissavy and R. Robine.—p. 976.
Advantages of Colloidal Lipoid Vehicle for Drugs. Hudelo, Montlaur and Drouin.—p. 977.
*Radiography of Aorta. A. Mougeot.—p. 983.
*Syphilitic Origin of Mikulicz' Disease. E. de Massary and L. Tockmann.—p. 987.
*Sugar Treatment of Tuberculosis. G. Rosenthal.—p. 988.
*Epidemic of Influenza. E. Joltrain and P. Baufle.—p. 991.

Comparative Percussion.—Ménard discusses the findings as they differ during forcible inspiration and normal expiration. If the dulness over the base of the lung, for example, becomes modified during forcible inspiration, he declares that this excludes pleurisy with effusion and pachypleuritis with adhesion of the sheets of the pleura. In pleurisy without effusion there is merely more or less reduction in the inspiratory variation of the percussion sound. The absence of any modification in the percussion sound during forcible inspiration, coinciding with a higher pitch of the sound and reduced elasticity of the chest wall, indicates impermeability of the lung or a severe pleural affection. The absence of any modification during forcible inspiration is especially important with chronic tuberculosis. In the superior lobe it indicates a grave anatomic lesion. In Ménard's extensive roentgen verification of the percussion findings, he always found this area superposed by opacity and lack of any change during coughing. In the other parts of the lung, the impermeability must be considered also in relation to the pleura.

Hexamethylenamin by the Vein in Influenza.—Pissavy and Robine relate that of their thirty-seven cases of influenza with complications on the part of the lungs, seventeen were treated with intravenous injection of 8 c.c. of a solution of hexamethylenamin containing 0.25 gm. of the drug per 1 c.c. One in this group died, while five died in the group of twenty treated with the ordinary measures. The injection was always borne without appreciable by-effects.

Roentgen Study of Aorta.—Mougeot gives two roentgenograms of the normal thoracic aorta injected with some opaque substance, and discusses the findings.

Mikulicz' Disease in a Syphilitic.—The typical lacrimal and salivary gland enlargement of Mikulicz' disease in the case reported subsided under treatment for syphilis. This recalls a case reported by the same writers in which chronic thyroiditis with abortive myxedema simulated general paresis in a syphilitic, and the whole set of symptoms was clinically cured by combined mercurial and thyroid treatment. These two cases show that syphilis may attack the glands more often than has hitherto been credited.

Sugar Treatment of Tuberculosis.—Rosenthal reports a number of cases which apparently confirm the indirect curative influence of subcutaneous injections of sugar solution and the still more effectual action when given by the vein. He gave a series of twenty intravenous injections of 5, 10 or 20 c.c. of a solution of saccharose (equal parts saccharose and water), never noting any local or general reaction. Tests of the urine, etc., showed an activation of liver functioning and of the digestive processes in general. The most convincing of the cases he reports was that of a soldier of 30 with a subacute exacerbation of bilateral tuberculous processes transformed in a few weeks into a torpid state evidently on the way to healing.

Influenza.—Joltrain and Baufle discuss the flaring up of the epidemic of influenza in October, and relate that a troop of soldiers from Indo-China nearly all had the disease lightly in the spring, but when the disease appeared again it spared this troop completely, while troops and civilians around developed it, and in the severer form of the second period. This suggests, they think, an immunizing influence.

Presse Médicale, Paris

Dec. 26, 1918, **26**, No. 72

*Sign of Incipient Exophthalmic Goiter. C. Lian.—p. 665.
Self Protection in Roentgen Work. L. Delherm.—p. 667.
Gun with Bent Bayonet for Immobilization and Traction of Fractured Femur on the Battlefield. L. Babin.—p. 669.

Sign of Abortive Form of Exophthalmic Goiter.—Lian announces that tenderness in the region of the thyroid is a sign of a tendency to exophthalmic goiter. The symptoms on the part of the heart with this abortive form of exophthalmic goiter may be mistaken for a cardiac neurosis. The tachycardia may be moderate, and occur only when standing or working, or under emotional stress. Predominance in the morning and slight maximal hypertension are not restricted to exophthalmic goiter. Only examination of the thyroid body and eyes will decide the question. In every case of tachycardia of doubtful origin, all the ocular signs of exophthalmic goiter should be sought with care, even when there is nothing to suggest exophthalmos or goiter. Sometimes only the behavior of the upper eyelid will give the clue. Certainty is attained by the pain experienced when the thyroid region is palpated or explored with the point of a pin. The patient's wincing and grimaces as the thyroid area is reached, render questions unnecessary. The pain is sharp, like a burn or deep prick. This painful area corresponds almost exactly with the outline of the thyroid or merely of the isthmus. A light stroking of the thyroid region started one patient to coughing. When the goiter is once developed, this sensitiveness vanishes. Hyperesthesia of the thyroid region seems to provide the Ariadne's thread which will enable us to lead out from the maze of cases of palpitations those who have incipient exophthalmic goiter. Lian has thus discovered eight of these *petits basedowiens* in his last thirty cases of puzzling tachycardia. A number of such will probably be found among the cases now labeled tachycardia from shell shock. The experiences related sustain the assumption of an infectious toxic origin for exophthalmic goiter in many cases. Acute articular rheumatism and typhoid probably head the list, but inherited syphilis must sometimes be incriminated.

Progrès Médical, Paris

Dec. 7, 1918, **33**, No. 49

The Support Immediately after Amputation. Roederer.—p. 409.
Pedagogic Anthropology. Godin.—p. 409.
*Malaria and Urinary Infection. Uteau and Piollenc.—p. 411.

Malaria and Urinary Infection.—Two cases are reported which warn that an infectious process in bladder or urethra may induce intermittent attacks of chills and fever which are liable to be mistaken for malaria and treated accordingly. This was the case here, the two soldiers having been taking courses of quinin, but after incision of a urinary phlegmon, or urethrotomy for stenosis, the supposed malaria disappeared permanently.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 14, 1918, **48**, No. 50

Vital Staining. F. Uhlmann.—p. 1665.
*Influenza and Psychoses. S. Notkin.—p. 1669.
*Malignant Tumors with Leukemia. E. Munk.—p. 1671.
*Medical Aspects of Foot Races. F. M. Messerli.—p. 1680.

Psychoses with Influenza.—Notkin reports two cases in which latent dementia praecox was whipped up into a pronounced form by an attack of influenza. In two other cases acute mania developed during the influenza. He had several other cases of psychoses developing during influenza, but he is convinced that there was always some more or less latent predisposition. The onset was stormy but in a short time essential improvement or complete recovery followed.

Leukemia with Malignant Tumors.—Munk analyzes what has been published on this subject, and reports the case of a woman of 59 who was under observation in the hospital for fifteen months. Pains in the left side led to the discovery of myeloid leukemia, and the left side was exposed to the roentgen rays. Later a sarcoma developed in the foot and another in the knee, and numerous nodules were found in various organs. In certain points, especially the chronic course, the case differs from Sternberg's description of myelosarcomatosis, and there was no tendency to green discloration of the marrow, which was pronounced in all the cases of myelosarcomatosis on record. There was no Bence-Jones albumose to be found, while the blood contained 60 per cent. myelocytes. The case thus had certain features of chronic leukemia and of Rustitzky's multiple myelomas, as well as of myelosarcomatosis, without fitting into the frame of either.

Medical Tests of Marathon Runners.—Messerli reports the findings in some foot races under the auspices of athletic associations and the military service. The preliminary examination enabled him to exclude certain runners whose heart would certainly have been unable to stand the strain without injury. The findings afterward emphasize the great importance of systematic regular training in exercises of the kind. The men trained in athletics bore the long runs up to 21 km. 800 m. without any cardiac or other disturbance. The army runners, on the other hand, who had not had systematic or long enough training developed abnormal manifestations on the part of the heart in 44.7 per cent. He advises shortening the course to 12 km. and insisting on systematic training for the *course de fond,* as this is highly useful and necessary from the military standpoint.

Annali d'Igiene, Rome

September, 1918, **28**, No. 9

Bacteriology of Peritonitis from War Wounds. V. Puntoni.—p. 477.
*Deficiency Diseases. G. Volpino.—p. 482. Conclusion.

October, 1918, **28**, No. 10

*Cultivation of Staphylococci on Previously Vaccinated Culture Mediums. M. Carpano.—p. 545.
*Agglutination of Dysentery Bacilli by Normal and Other Serums. B. de Vecchi and C. Sarti.—p. 556. Conc'n.

Deficiency Diseases.—Volpino reports the results of experimental research on pellagra, scurvy and what he calls monophagism, comparing his findings with those published by others. He is director of the state bacteriologic laboratory at Bergamo, and among the practical results realized was the active immunization of pellagrins against relapses and recurrence. This was accomplished by injection of progressively increasing doses of an aqueous extract of maize. Pellagrins in the first stage of the disease were selected, and the course was begun during the winter, as pellagra generally shows an attenuation in the winter. Fourteen patients were thus treated and twelve have been traced to date. Some of them had been totally incapacitated by the recurrences of the pellagra, but the immunization realized by the injections seemed to banish further recurrences. The cure has been complete to date in six and nearly complete in three others. The disease is stationary in another. These have all returned to their customary diet. One other is under specially favorable dietetic conditions and his health has been continuously normal.

An extract of spoiled maize induces a severe and complex reaction in pellagrins, but nothing of the kind is observed with the extract of sound maize. The severe reaction seems to indicate that pellagrins are in a state of hypersensitization. This assumption is sustained by the fact that guinea-pigs fed exclusively on maize for twenty or thirty days and then injected with blood from a pellagrin die in twenty-four hours, or at most in two or three days, while the blood from nonpellagrins does not affect them. Another feature found common to pellagrins and to the maize-fed guinea-pigs is that their serum contains ferments which digest the proteins of maize. The hypersensitization to the extract of spoiled maize and the ferment content of the serum fluctuate parallel to the manifestations of the pellagra, both practically disappearing as the patients recover from the pellagra. Both are evident in a slight degree in nonpellagrins who are habitual eaters of maize.

The phenomena observed in pellagra throw light on the loss of weight and of appetite from a too long continued uniform or one-sided diet—monophagism. A change to another cereal does not answer; the change has to be to some substance of quite different nature, potatoes or peas, when the experimental animals were running down from three weeks' feeding with corn or any other single cereal. The animal died on a change to rice or wheat, the same as if the corn alone had been continued. There is evidently, besides the lack of certain elements in the food, the presence of certain other elements which in time develop a toxic sensitizing action. In this, monophagism differs essentially from starvation and from avitaminosis. This doctrine of monophagism explains what is observed in pellagra and also in scurvy. Epidemics of the latter have been observed when there was abundance of fresh vegetables or potatoes. There seems to be a toxic sensitization of the organism from the one-sided diet, defective in certain elements and with an overabundance of others, working in a predisposing environment. Turnbull's experiments have demonstrated that certain hay-fever subjects seem to be sensitized against the proteins of certain cereals, so that by dropping bread and cooked cereals from their diet their state of anaphylaxis was much attenuated. But the most convincing proof, Volpino reiterates, of the correctness of his views is his success in immunizing guinea-pigs and pellagrins against return of symptoms by injection of an aqueous extract of maize.

Vaccinated Culture Mediums and Staphylococci.—Carpano cultivated the staphylococcus on the usual culture medium and then filtered out or scraped away the cultures, and sowed the medium again with the staphylococcus after this preliminary vaccination. It did not grow well on broth mediums thus vaccinated, and it did not grow at all on solid mediums. Crossed cultivation with other strains and with other common bacteria showed a reciprocal tolerance, the inhibiting effect being far less pronounced with bacteria such as are commonly associated with staphylococci.

Agglutinins and Coagglutinins in the Serum.—Vecchi and Sarti report that the results of the extensive research here described show that agglutination of typhoid and paratyphoid bacilli has scant diagnostic importance unless it occurs only above 1 : 100. Normal persons frequently display weak agglutinating properties, especially if they have recently been vaccinated against typhoid, as also the sick with other diseases entailing intestinal lesions.

Chirurgia degli Organi di Movimento, Bologna

December, 1918, **2**, No. 5-6

*To Lengthen a Shortened Limb. V. Putti.—p. 421; V. Putti and A. Landini.—p. 469.
*Displacement of Ulnar Nerve for Suture. R. Bastianelli.—p. 490.
*Free Grafts for Mobilization of Soft Parts. I. Scalone.—p. 497.
Immediate Treatment of Wounds of Knee. G. Matronola.—p. 543.
*Sciatica from Vertebral Anomaly. A. Rossi.—p. 583.
*Operative Cure of Coxa Vara. L. Losio.—p. 635.
*To Center the Articulation. A. Lollini.—p. 645.

To Lengthen Shortened Limbs: The Osteotone.—Putti gives illustrated descriptions of the technic he applies to lengthen a shortened femur and means to stretch the soft parts to correspond. The bone is sawed lengthwise, then half way across at top and bottom of the lengthwise sawed portion. This enables the two halves to be slipped along on each other and lengthens the bone considerably. He does the lengthwise sawing in a sound part of the bone, not through the fractured portion. The sawing is done with a circular saw mounted transverse to the handle. The transverse sawing is done with the saw parallel to the axis of the handle. A Gigli wire saw might be used instead. The incisions in the periosteum are inverse to those in the bone, and the flaps are turned back. The stretching of the soft parts is done by means of two long screws implanted in the femur above and below the plastic operation. These screws are mounted on a straight bar parallel to the femur. This bar can be screwed longer or shorter as desired, thus bringing the screws in the bone nearer together or farther apart. This traction by double infixation can keep up a gentle but continuous traction, graduated day by day to conform to the traction desired and the lengthening realized. Four cases are described to show the harmlessness of this *trazione per doppia infissione*, and the fine results attained with shortening of one or more years' standing. The osteotone is much more convenient in every way than other methods of treating shortening with complicated pulleys, weights, etc. With the osteotone the man can be up and about, with crutches. In one of the cases reported a shortening of 9 cm. of three years' standing was reduced to 2 cm. by this means. It acts exclusively through the skeleton, and exclusively at that portion of the bone which is being lengthened, and it seems to be better tolerated than any other method of external traction. Diagrams are given showing the force applied in comparison to the stretching realized. In one case the integral lengthening of the limb was obtained in fifteen days. The vessels adapt themselves perfectly to the stretching of the soft parts but the nerves are less amenable sometimes. In one case there was pain in the sciatic nerve for a few days but it then disappeared spontaneously. In one case the plastic operation had to be done at the site of the old fracture, and pains in the femoral nerve compelled the removal of the osteotone before the full lengthening was realized.

Displacement of Ulnar Nerve to Shorten Its Course.—Bastianelli reports two cases in which the ulnar nerve at the elbow required suturing. By moving the stumps forward, to the front of the elbow, the course of the nerve was shortened so much that the stumps were readily sutured together. There had been quite a gap between them as they lay in their natural position. The two patients have not experienced any inconvenience from the altered position of the nerve.

Autografts of Fascia to Aid in Mobilization of Tissues.—Scalone gives the details of thirteen cases in which he applied an investing sheath to a sutured nerve or other tissues liable to develop adhesions. The investing sheath was cut usually from the fascia lata, only once from the aponeurosis near the field of operation. The operations were done for six different indications, including reconstruction of the aponeurosis destroyed by trauma, of tendon sheaths after suture or plastic operations on a tendon, and to prevent the radius and ulna from growing together again after synostosis had been broken up. In two cases the fascia flap was used to substitute the dura mater after a war wound of the skull.

Sciatica from Congenital Anomaly of the Vertebrae.—Rossi remarks that the roentgen rays have cleared up many mysteries but scarcely any more interesting than the symptoms from radicular neuritis of the sacral plexus resulting from a congenital anomaly of the fifth lumbar vertebra—what he calls sacralization of this vertebra. He has encountered twenty-two cases in roentgen examination of 800 spines, and others have reported similar cases, bringing to forty-six the number now on record. The resulting disturbances had been labeled rebellious bilateral sciatica, Potts' disease, coxalgia, or lumbago. The pains in the lumbar-sacral region or hip joint were aggravated by walking and fatigue of any kind, and were relieved by repose and lying down. The disturbances did not develop as a rule until between the ages of 20 and 35, although in one of his cases a child of 6 was affected. Sometimes they came on first after a trauma or acute polyarticular rheumatism. The complete ossification of the skeleton probably is responsible for their final development in some cases. The prognosis is generally benign although the disturbances may become serious and chronic. Recurrences are not frequent. If prolonged repose, electric and other medical measures fail to cure, a bone graft might be proposed to relieve the compression on the nerve. The outcome is generally favorable.

Treatment of Extreme Coxa Vara.—Losio extols the advantages of Codivilla's hinge method of osteotomy at the junction of the neck and shaft of the femur in treatment of coxa vara. But when the deformity is of a very extreme type, he prefers a curving osteotomy of the greater trochanter, and shows by a case reported in detail the superiority of this technic in these extreme cases.

Calculation of Center of Joint.—Lollini calls attention to the mathematical precision of the means with which he determines the exact center of the joint in measuring for an artificial limb. The illustrations show at a glance how the joint has its exact center determined by means of a curve drawn with a pencil fastened to the limb below as the joint is flexed and extended, the whole limb lying on the drawing board. The part of the limb above the joint has to be immovably fastened. The simplest means for this is to apply a plaster dressing and screw this hard shell to the board as he shows by illustrations of the thigh and knee thus arranged. The pencil fastened to the stump below the knee draws the arc of a circle as the joint is flexed. The radii drawn from different parts of this arc of a circle all meet at a point which is the exact functional center of the knee joint. The same principle can be applied to any joint. The arc formed by the play of the joint and recorded with an attached pencil gives the basis for drawing the radii, and their converging point is the center of the joint.

Gazzetta degli Ospedali e delle Cliniche, Milan

Sept. 5, 1918, 39, No. 71

Influenza in Italian Army. F. *Pancrazio.*—*p. 688.*

Sept. 19, 1918, 39, No. 75

Artificial Pneumothorax in General Practice. G. de Lucchi.—p. 720.

Sept. 22, 26, 29, 1918, 39, No. 76-78

Epidemic of Dysentery in Genoa District. F. Durand.—p. 726.

Policlinico, Rome

Dec. 22, 1918, 25, No. 51

Influenzal Pneumonia and Pneumonic Plague. G. Dragotti.—p. 1247.
*Does Influenza Confer *Immunity?* V. Scoccia.—p. 1249.
*Motor Plastic Operation on Arms. A. *Chiasserini.*—p. 1250.
Plaster Cast with Traction for *Femur.* *L. Cerchione.*—p. 1254.
Continuous Traction without Weights, for Unsutured Stumps. E. Bellandi.—p. 1255.
*Import for Prognosis of Cardiac Extrasystoles. G. Galli.—p. 1256.

December, 1918, Surgical *Section No. 12*

*Paraffin Drainage. A. L. Soresi.—*p. 353.*
*Hypogastric Diversion of Urine. R. Mosti.—p. 374.

December, 1918, Medical Section *No. 12*

Action of Endocrinous Glands on *Uricolysis.* *L.* d'Amato.—p. 353.
Albuminuria without Nephritis. I. Romanelli.—p. 362. To be cont'd.
Respiration in Pleurisy. G. Stradiotti.—p. 381.

Does Influenza Confer Immunity?—Scoccia relates that epidemic influenza swept down on the Spezia hospital during the months of May and June and every one of the eighty nurses and attendants contracted the disease. Late in September the epidemic returned, severer than ever, but it spared completely all the nurses. Not one was affected. The conclusion seems obvious that the first attack left an immunity.

Plastic Motor Surgery.—Chiasserini describes three cases in which he reamputated the forearm to permit muscular control of the prosthesis. In another case he operated on the hand for the purpose.

Import of Extrasystoles for Prognosis.—Galli remarks that as extrasystoles may be encountered in both the well and the sick, while they may be missing from the graver clinical pictures, not much importance can be ascribed to them. He warns further that the subject's attention should never be called to them. If the subject has noticed them himself, he should be reassured and tranquillized at once. This is especially necessary in military circles as otherwise the man might cultivate this symptom and get discharged from service on account of it. Galli has seen men labeled myocarditis solely on the basis of these common extrasystoles.

Paraffin Drainage.—Soresi does not hesitate to call this method a new *principle of drainage* for surgical use. It is based on the fact that paraffin has no affinity for any other substance and is not affected by the organic fluids. Its name, *parum affinis,* suggests this. A strip of gauze impregnated with paraffin and carried into the depths of a wound holds aloof from the tissues and fluids, as it were, leaving always a free space between it and the tissues and fluids. This space, aided by gravity, is always sufficient for ample drainage of the secretions of a wound. No tubes, etc., are necessary. Three years of experience with war wounds treated with these paraffined strips of gauze have confirmed that, absolutely without exception, any quantity of secretions that may be produced are effectually drained away. Any paraffin will do. He heats a photographic bath tray, containing water, over an alcohol lamp. A smaller tray in the water tray holds the paraffin, and a narrow strip of gauze or cloth is held up by the two ends and worked back and forth in the melted paraffin until thoroughly coated with it, the entire length of the strip. If coarse gauze is used, the strip can be doubled before dipping. The strip can be dipped more than once if desired. The ends that had been held in the hand must be coated and dipped in turn also. Threads, rolls of gauze, and tubes can likewise be coated with the paraffin and used for special indications. Another way of applying the principle is by pouring melted paraffin directly into the wound. It settles down into the deepest recesses and crowds out the pus and loose foreign bodies, while drainage continues around it, and the hot paraffin has a stimulating action on the tissues. Soresi gives illustrations of the simple and inexpensive technic, and expatiates on the drawbacks of other methods of draining, and the advantages of the paraffin method, besides those already mentioned. He warns that the aid of gravity must be utilized to the extreme. His preliminary communication on this paraffin or petrolatum method was mentioned in The Journal early in 1916. His experience since then, he declares, has confirmed more and more the superiority of paraffin drainage over other methods in vogue to date.

Diversion of Urine with Wounds of Urethra.—Mosti reports eight cases to demonstrate the advantages of hypogastric cystotomy in case of injury of the urethra. If there are no signs of local sepsis, this may suffice alone, giving the urethral lesion a chance for spontaneous repair. A retention catheter should not be used except when the urethra has had to be incised, and then, only after the wound has begun to heal. Under other conditions the hypogastric diversion of the urine renders it unnecessary, while its use *may* entail serious injury.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

November, 1918, **1**, No. 11

*Chemical Study of Gastric Juice. L. Usobiaga.—p. 497. Conc'n.
*Stomach Disturbances after Salicylic Medication. R. Luis y Yagüe.—p. 501.

Chemical Research on Gastric Juice.—Usobiaga describes the various technics in vogue for study of the gastric juice, but declares that the Hayem and Winter incineration method surpasses all others in simplicity and the distinctness of the reactions. No complicated apparatus are required and the procedure takes very little time.

Stomach Derangement from Acetylsalicylic Acid.—Luis y Yagüe relates that during the epidemic of influenza many persons took acetylsalicylic acid or sodium salicylate, and numbers of cases were encountered in which severe stomach disturbances followed, sometimes with actual hematemesis. The drug was taken in the usual doses and intervals, and the disturbances began gradually and grew constantly worse, with sometimes sudden hematemesis; or melena was the first indication of the gastric hemorrhage. None of the persons thus affected had complained of stomach trouble but practically all had a history of a "gastric past," and the connection of the gastropathy with the medication was confirmed by the disappearance of symptoms when the drug was suspended, and their return when it was resumed. The greater number of cases coincided with the taking of the drug in the form of a tablet, swallowed without dissolving. No disturbances of any kind had followed when the drug had been given in the form of an enema. The mode of onset of the disturbances was quite different from that with an idiosyncrasy. Everything seems to indicate a direct local irritation of the stomach mucosa from the drug, acting like a caustic on a mucosa which happens to be a point of lessened resistance, or subject to erosions and particularly friable from any cause, and particularly with a latent ulcer. The normal mucosa seemed to bear the drugs without harm. The association of acetylsalicylic acid with sodium bicarbonate may promote the corrosive action as an alkaline medium accelerates the splitting of the drug and the liberation of the salicylic acid. The stomach history of every patient should be ascertained before prescribing either of these drugs, and they should not be given by the mouth in case of doubt, or at least the drug should be well diluted, and taken after eating, not before. The hemorrhage from the stomach cannot be explained by toxic action nor by the action of the influenza as no cases were encountered except those in which one of these drugs had been taken. Eight typical cases are related. The gastric hemorrhage was very severe in some of them, occurring with syncope, and returning in one case after only three or four tablets had been taken. Sodium salicylate was responsible in only two of the cases. The doses are not mentioned.

Cronica Medica, Lima

October, 1918, **35**, No. 664

*Chorea. E. Odriozola.—p. 289.
*Tuberculin in Ocular Tuberculosis. A. Gardini.—p. 293.
Pathologic Anatomy of the Spleen. O. Hercelles.—p. 312. Cont'n.

Chorea.—Odriozola's experience has confirmed the assumption that chorea is a morbid entity with a multiple infectious origin, causing actual organic disturbance, probably in the cortex. It calls for repose for body and mind, removal of every possible focus of infection in teeth or tonsils and of irritation from helminths, otitis media, adenoids, phimosis, etc. The child should be kept out of school during convalescence to avoid relapses. In giving Fowler's solution the possibility of arsenical neuritis must not be forgotten.

Tuberculin in Ocular Tuberculosis.—Gardini reviews the testimony for and against tuberculin treatment of tuberculous lesions in the eye, and states that Dr. Campodónico has reported a case of tuberculous iridocyclitis which improved under two injections of tuberculin until almost perfect vision was restored. A year later the symptoms returned, still more severe, and fearing the loss of the eye from the hypertension, iridectomy was done, followed by another course of tuberculin treatment which proved as successful as before in clearing up the eye and restoring vision. Gardini emphasizes the necessity for small doses and avoidance of a febrile reaction, and long continuance of the tuberculin to ward off a relapse. There is no use in trying the tuberculin for ocular tuberculosis if there are already pulmonary lesions installed. Focal, local and general reactions show that we are on the right path, but warn to slow up some. The local reaction is of no moment except as an index of the patient's susceptibility. A focal reaction always occurred in the eye affected. He began with 1/10,000 mg. and very slowly and tentatively increased the dose to 1 mg. as the maximum, with four or five days' intervals. Three cases are described; the patients were two girls of 13 and a young woman. The tuberculous keratitis in the latter was of three years' standing and peculiarly tenacious. No benefit was apparent under the tuberculin treatment. The case teaches the lesson not to delay tuberculin treatment too long. One of the girls had had keratitis for two months and it improved to a clinical cure under the tuberculin treatment. In the other girl iritis with a solitary tubercle and posterior synechia, completely and permanently retrogressed under the three months' course of tuberculin treatment.

Prensa Medica Argentina, Buenos Aires

Nov. 10, 1918, 5, No. 16

*Vaccination Against Typhoid. S. Mazzá.—p. 157.
*Tuberculin Test in Children. F. de la Torre.—p. 159.
*Malformations of Uterus. M. L. Pérez.—p. 159. Conc'n.
Complex Ocular Paralysis. A. Barbieri.—p. 165.

Nov. 20, 1918, 5, No. 17

Vestibular Nystagmus. R. Argañaraz.—p. 169. To be continued.
*Continuous Drainage for Ascites. N. Tagliavacche.—p. 172.

Vaccination Against Typhoid in Argentine Army.—Mazza is chief of the laboratory service of the Argentine military medical department, and he relates that unprecedentedly fine results were obtained when the men were given two injections of larger doses instead of the three injections of former days. Even a single injection will answer if the vaccine is very fresh. It can be in an aqueous solution for the purpose, and the dose must be large. In case the vaccine cannot be absolutely fresh, lipovaccines should be used. He adds that the slow absorption of the lipovaccines, without reactions, and their indefinite keeping properties, without change, render them the ideal vaccine when it is desired to give merely one single, highly concentrated injection. The statistics he gives from the Argentine service confirm his statements in every respect.

Tuberculin Tests in Orphan Asylum.—De la Torre reports a positive response in seventy-one out of the 171 children tested. About 20 per cent. of the infants under 1 year gave a positive response, including one only 2 months old; 34.4 per cent. of those between 1 and 2; 42 per cent. of those between 2 and 5; 47.6 between 5 and 10, and 57 per cent. between 10 and 15. Of the total positive responses only fifty-two were obtained at the first test; eleven at the second, and the others at the third to the sixth application of the test. The first three tests were made by the skin technic, the others by Mantoux' intradermal method.

Malformations of the Uterus from the Obstetric Standpoint.—Pérez gives in this concluding instalment the various means for detecting malformations of the pregnant uterus, and describes the case of a primipara with a double uterus. The pregnant portion of the uterus lay slanting in the abdomen, while the empty portion, as large as a mandarin orange, opened into the cervix and impeded delivery as if a low tumor were in the way. The presence of the empty half entails abnormal conditions; in this case it seemed to have been responsible for the premature delivery. The woman entered the hospital at about the seventh month as there were small repeated hemorrhages from the uterus. She was given two enemas with laudanum and was kept in bed, but the next day the membranes ruptured and delivery followed spontaneously in a few hours. The child gave a cry, but soon died. The following day labor pains came on again, and finally scraps of decidua tissue were found loose in the vagina. This suggested the possibility of a double uterus, confirmed by examination under a few whiffs of chloroform. The bibliography on malformations of the uterus is appended, a total of 121 titles.

Continuous Autodraining of Ascitic Fluid.—Tagliavacche gives an illustration of what he calls a button-cannula. It is a broad tube, bent at a right angle, with wide openings at the tip. This tip is introduced into the abdominal cavity, while the flat flaring mouth of the tube, which is fitted into the subcutaneous tissue, keeps the tube in place, preventing its slipping into the abdominal cavity. In the case for which the silver drain tube was made, the ascites was the consequence of a syphilitic liver disease in a married woman of 43. The button rested on the aponeurosis, and the fluid drained through it best when the woman lay on her side. The case was a severe one, 12 liters of fluid having been removed just before the button-cannula was introduced, and the liver lesions were irreparable. The woman died about five months afterward, but her condition in the meanwhile had been rendered much more comfortable. The cannula was borne well. In a future case he would introduce it at a lower point in the abdomen in order to take better advantage of gravity.

Progresos de la Clinica, Madrid

October, 1918, 6, No. 70

*Experiences with Tuberculosis. J. V. Montenegro.—p. 205.
Mental Deficiency in North America. S. Rubiano.—p. 219.
*Uric Acid in the Human Organism. J. B. Millares.—p. 232.
*Treatment of Influenzal Pneumonia. A. Piga and L. Lamas.—p. 262.

Experiences with Pulmonary Tuberculosis.—Montenegro remarks that if he had preserved all the records he would have 40,000 cases on which to base his conclusions. But 20,000 adult cases are enough, and he here classifies this material. Over 18 per cent., were under 20; 40 per cent., between 20 and 30; 25 per cent., between 30 and 40, and 11 per cent., between 40 and 50. There were familial antecedents in only 26.53 per cent. of the 8,939 cases in which this was investigated. This group included 4.57 per cent. with tuberculous husband or wife; 11.6 per cent., tuberculous parents, and 8.9 per cent., tuberculous brothers and sisters. This low familial percentage is due to the fact that the familial group of infections so often prove fatal before adult age is reached. In only 62.36 per cent. was there history of some precursor disease, bronchitis in 28.67 and pneumonia in 10.41 per cent., tuberculous lesions elsewhere in 2.12 per cent. Early hemoptysis was noted in 48.16 per cent., and he insists that every hemorrhage from the lung in the young, if mitral stenosis and echinococcus disease can be excluded, is a sign of tuberculosis. It is not a grave symptom if not too profuse and if not accompanied by fever. He found a record of hemoptysis in 52 per cent., of the men and only in 48.88 per cent., of the women. The right side was affected in 36.79 per cent., of 11,485 cases, and the left side in 11.47; both lungs in 51.72 per cent., the sexes about equally represented in each group.

Uric Acid.—Millares' article obtained the prize offered by the *Progresos*. He presents the present status of our knowledge on the formation and elimination of uric acid in health and disease, recalling that the relation of uric acid to urea is a factor variable in each organism and independent of the food. The uric acid-forming property of different foods has a wide range, from thymus at one extreme to milk and eggs at the other. He adds that the normal uric acid content of the blood can be determined most conveniently and reliably by the Brugsch-Kristeller color method. It is based on the blue tint which develops when sodium carbonate is added to the solution of uric acid after it has been mixed with a solution of sodium tungstate. Details of the technic are given.

Treatment of Pneumonia.—Piga and Lamas insist that the first indication is to combat the toxemia, and they agree with Barbary that cholesterol is the best means yet at our disposal for this, but they do not specify how it should be given. They warn that the germs are in the blood although they seem to be only in the respiratory apparatus. The danger is in the blood; here the deadly germs are multiplying, and it is here they must be attacked. They consider mercuric chlorid as the best weapon to date for this, injecting it directly into the blood. Venesection may also be useful, injecting saline with epinephrin alternately with caffein to compensate for the blood withdrawn. Cold packs to reduce the temperature with medication to stimulate leukocytosis, in the grave cases, turpentine. Pleural effusions must be tapped, and they advocate the use of serum from the renal vein of goats, especially if there is reason to assume that the pleural effusion is of mechanical origin. Surgical measures should not be delayed if pus develops in the pleura. No technic nor doses are mentioned for any of the above.

Revista Española de Medicina y Cirugia, Barcelona

November, 1918, 1, No. 5

*Retention of Secundines. A. Esquerdo.—p. 217.
Some Points in Microscopic Technic. P. J. Pujiula.—p. 221.
Referendum on Influenza. F. Tous Biaggi and others.—p. 225.

Treatment of Retention of Fragments of the Placenta.—Esquerdo has long been teaching that after the child has been delivered, the placenta and blood clots are to be regarded as foreign bodies which should be got rid of as soon as possible. He makes a practice of clearing out the uterus without delay, no matter what the conditions may be in regard to infection, after waiting at most twenty-four hours.

He clears the uterus but warns against using the curet for the purpose. Rubber drain tubes are placed to insure proper drainage, and the patient can then be left to the care of the nurse. He proceeds to clear out the uterus if all the placenta has not been expelled within twenty-four hours after the childbirth or abortion, or even earlier if hemorrhage or fever indicates that the fragments of the placenta are inducing irritation. When dilatation does not have to be forcible, there is no need for general anesthesia. He has not done any tamponing afterward for twelve years, and regards the whole procedure as so harmless that he does not hesitate to practice it even in incipient septicemia and peritonitis. He is convinced that it is the only means to ward off or control salpingitis.

Revista de Medicina y Cirugia, Havana

Dec. 25, 1918, **23**, No. 24

*Echinococcus Cyst of Liver. J. A. Presno y Bastiony.—p. 675.
Gallstone Cholecystitis at Fifth Month of Pregnancy. E. Stincer.—p. 681.

Echinococcus Disease of the Liver.—Presno remarks that echinococcus disease is quite rare in Cuba. The case he reports is unusual further in that the echinococcus cyst formed a pedunculated tumor which was easily removed by cutting out the pedicle from the liver tissue. The patient was a Syrian who had been living for several years in Egypt. The tumor was supposed to be a movable kidney, as he had had nephropoxy done once and it was assumed that the kidney had worked loose, but an incision in this region showed it still in place. A median laparotomy then cleared up the case.

Semana Medica, Buenos Aires

Oct. 10, 1918. **25**, No. 41

*Puerperal Gangrene of Uterus. E. Zarate.—p. 439.
Fibromas of External Ear. R. Becco.—p. 444.
*Simple Ulceration of the Stomach. L. A. Huerta.—p. 446.
Forceps and Version as Aid to Pubiotomy and Symphysiotomy. T. A. Chamorro.—p. 448.

Puerperal Gangrene of the Uterus.—Zarate cites Beckmann's compilation of forty cases of gangrenous metritis and reports a case from his own practice, the first published in Argentina. It seems to be rare in France, but Beckman's compilation included twelve cases in three years in one hospital at Petrograd. Fully 90 per cent. of the cases on record were in Slavic women. The sloughed off wall of the uterus is usually expelled about the close of the third week. The extreme sensitiveness of the uterus, the change in color, the fetid odor of the lochia and the small rapid pulse are the only clinical signs of the dissecting metritis at first. The mortality according to Beckmann was 28 per cent., the deaths occurring from perforation or septicemia. Intra-uterine treatment is contraindicated. In Zarate's case the sloughed off strip measured 4 by 15 cm. The odor was cadaveric, but as soon as it had been expelled the temperature and pulse returned to normal and clinical recovery was soon complete. The patient had borne nine children but only one and the fruit of the present pregnancy were viable. The others died soon after birth. Delivery had been instrumental in all. The microscope showed an enormous number of associated germs in the connective tissue of the cast-off sequester. These germs had evidently liquefied the interstitial tissue, and this facilitated the elimination of a large mass of muscle relatively only slightly altered.

Simple Gastric Ulceration.—Huerta presents arguments to prove that every case of Dieulafoy's exulceratio simplex should be sent to the surgeon at once without wasting time on medical measures. If this were done there would be no deaths from this affection. It always begins with rupture of an arteriole, but the secretions, the peristalsis and the fluid in the stomach prevent clotting to block the opening in the arteriole, or conditions may interfere with its retracting to close the opening spontaneously. Even although the patient may be absolutely still, this does not ensure conditions in the stomach allowing the plugging of the hole by a durable coagulum. In a case described, a man of 39, always healthy except for a well treated syphilis in 1913, was taken suddenly with hematemesis without pain. He kept still in bed with ice to the stomach, but twelve hours later the hematemesis returned, losing 1.5 liters of blood, and a tender point was evident in the epigastrium. The vomited blood was red, with black clots, no cough or froth, and the diagnosis of exulceratio simplex was confirmed by the operation which followed at once. An incision 10 cm. long in the anterior aspect of the stomach showed nothing abnormal until the stomach was everted, when three bleeding vessels were located in the posterior upper region of the stomach. Each was ligated with a crown of silk stitches around the bleeding points, 2 or 3 cm. apart. The patient has been in robust health during the years since. Huerta remarks that up to 1912 there had been only fourteen operative cases of this affection published. Then Castro reported the first case in Argentina.

Acta Scholæ Medicinalis Univ. Imp., Kioto

Nov. 30, 1918, **2**, No. 4, German Edition

*Test for Sugar in Milk. S. Miura.—p. 413.
Formation of Tyrosol from l-Tyrosin by Bacteria. K. Hirai.—p. 425.
*Influence of Lipoids on the Solubility in Ether of the Haloid Salts. T. Yoshitomi.—p. 433.
Disintegration of dl-Phenylalanin by Bacillus Proteus and Bacillus Subtilis. H. Amatsu and M. Tsudji.—p. 447.
*The Liver in the Japanese. T. Kudo.—p. 459.
Pressure Atrophy of Bone and Cartilage. Y. Tanaka.—p. 491.

Determination of Milk Sugar in Milk.—Miura describes a technic which facilitates the removal of the albumin in the milk, and determination of the sugar content.

Influence of Lipoids on Solubility of Haloid Salts.—Yoshitomi reports that bromids otherwise insoluble in ether, become dissolved under the influence of organic lipoids or lecithin. This influence is even more pronounced on the iodids, but less so on the chlorids. Iodids are also dissolved by benzin but not the bromids.

The Japanese Liver.—Kudo has made a special study of the liver from 165 Japanese cadavers and tabulates the findings. He adds that no comparison can be made between his findings and the liver in other races as he does not know of any systematic research of the kind in other countries with which they can be compared. His article is profusely illustrated.

Nederlandsch Tijdschrift v. Geneesk., Amsterdam

Nov. 16, 1918, **2**, No. 20

*Reform in Medical Education. G. van Rijnberk.—p. 1587.
*Direct Cause of Death with Cancer. F. Meursing.—p. 1593.
Roengenoscopy of Lacrimal Passages. G. van Gangelen.—p. 1602.
*Prochownik Diet in Pregnancy. W. H. C. G. Keyzer.—p. 1606.
*Suppuration with Influenza. C. A. Ide.—p. 1612.
Epidemic Meningitis. W. Hoogslag.—p. 1613.
*Present Status of Trench Fever, etc. L. K. Wolff.—p. 1614.

Reform in Medical Education.—Rijnberk recently summarized Schwalbe's suggestions in this line. (See abstract on page 317 of THE JOURNAL, Jan. 25, 1919.) He here describes how Schwalbe proposes to gain time for the new branches he insists on, without lengthening the course. He suggests that the natural sciences, physics, etc., in the preparatory school should be given in special courses restricted exclusively to what is needed as a basis for the study of medicine, and no more. The course could easily be arranged with this in view. The course in physics should be restricted to the main points, and no practical exercises in physics should be expected of the medical student. All this leaves more time for chemistry, and a thorough grounding in this is necessary for a just conception of metabolism in health and disease, for dietetics, hygiene, legal medicine, therapeutics, etc. Laboratory work in chemistry is necessary. Botany, zoology and comparative anatomy he would discard altogether, and in place of them have biology, including heredity and paleobiology taught by a medical man.

The independent dissecting of cadavers he would also banish from the clinical years of the medical course. The knowledge derived from this work as at present conducted is not sufficient to enable the student to make independently a medicolegal necropsy, and he learns just as much in regard to the pathology of an organ when the professor takes it out of the cadaver before his eyes, as when he takes the organ out himself. Schwalbe urges further considerable cutting down in the practical laboratory work in bacteriology, including serology. The students cannot master the technic enough so they can go on to apply it independently. The cursory instruction in this branch can therefore be restricted to giving the students an insight into the methods of this special branch. The theoretical courses should also be reduced in number, the so-called general and special pathology, etc. A good textbook on the subject, studied quietly at home, is much more useful than the time-wasting and, from the nature of the subject, the dry theoretical lectures on these topics. When the medical student is ready for the final "candidate year," Schwalbe would have anatomy given less time and attention than is the rule now. He advocates breaking with the old tradition that the student must make his own preparations of all the nerves and muscles in the body. Schwalbe remarks, "Any one entering a dissecting room today can imagine himself transported back to the days of Vesalius. The students working so zealously to trace back to their first origins and final terminals, all the muscles, nerves and blood vessels, give the impression that they are striving to make discoveries in anatomy, as if the location and the course of the nerves, etc., were being investigated for the first time." In order to give the students a good idea of the relations between the muscles, joints and bones, he advocates demonstrations on the living body as anatomy is taught to students in the art schools. Also with roentgenograms and moving pictures. "In the dissecting room, let the attention be concentrated on topographical anatomy, especially of the cavities."

Rijnberk comments on all this that none of his readers probably will agree with Schwalbe in all points. He himself does not. "But it is certain," he adds, "that every one will find something in Schwalbe's remarks which appeal to him to some extent. The spirit of the university is always conservative, holding back from innovations. And in this lies its strength, but at the same time a danger. Life goes at a rapid pace nowadays. If the professors do not adapt themselves to the new needs and take into account the new demands on the profession, the training for which is their task, they fall short in the fulfilling of their duty. And there is no doubt that medical education as it now is conducted—good as it is in a certain sense—yet in many important points it does not answer its full purpose. With more exertion on the part of teachers and students than is necessary, yet it fails to attain all that might be attained, as every one knows who has given any thought to the matter in relation to practical needs."

Causes of Death with Cancer.—Meursing seeks to answer the question what people with cancer die of. He is prosector at the Pathology and Anatomy Laboratory at Amsterdam, and states that at 4,330 necropsies in the last nine years he found a malignant tumor in 602. The hospital with which the laboratory is connected does not take gynecologic, mental or eye cases, so that these groups are not represented among the cadavers. Of the total 14.4 per cent. cancer cases, the youngest age represented was a man of 21 with a liver cancer. In twenty-three cases there were two cancers, both possibly primary. The total of cancers was thus 625. About 25 per cent. had succumbed to cachexia; 2.4 per cent., to hemorrhage, mostly gastro-intestinal cases but there was one bladder case, and in four cases the fatal hemorrhage had occurred from a metastatic nodule on the surface of the liver. This suggests the necessity for caution in palpating the liver. About 5 per cent. of the intestinal cancers and 3.6 per cent., of the gastric cancers entailed fatal hemorrhage. Ileus, suffocation or pressure on the spinal cord were other causes of death, thus, a total of 38 per cent. for which the tumor itself was directly responsible. In the fifteen bladder cancer cases there were papillomas also in the bladder in three, that is, 20 per cent.; and in the stomach in eight of the 218 gastric cancer cases, that is, in 1.2 per cent. In the noncancer cadavers he found bladder papillomas only in 0.23 per cent., and stomach papillomas only in 0.36 per cent. These figures show that in 50 per cent. of the stomach papilloma cases malignant disease developed, as also in 30 per cent. of the bladder papilloma cases. Pulmonary embolism from three to thirteen days after the operation was the cause of death in 1.3 per cent. of operative cancer cases, and in 0.7 per cent., of the total cadavers. In about 4.7 per cent.. of the cancer cases death was due to pulmonary tuberculosis, while this was the cause of death in 22 per cent., of the total 4,330 necropsies. There was thrombosis in 5.2 per cent.; in 8.5 per cent. of the cancer cases.

Diet in Pregnancy.—Keyzer protests against some recent statements to the effect that the Prochownik diet for pregnant women has a tendency to make the woman weak while not facilitating the birth process. His experience with it has been extremely favorable. He recalls that Prochownik introduced this special diet exclusively for women with contracted pelvis, and this is its special field. Keyzer describes a particularly instructive case in which a multipara with contracted pelvis had always had extremely difficult deliveries until this diet was systematically followed at each pregnancy and approximately normal obstetric conditions were realized thereby. At a later pregnancy she neglected the Prochownik dietetic restrictions, and delivery was very difficult, the child's arm being broken in the procedure.

Influenzal Suppurative Process.—A woman of 59 was apparently recovering from influenzal pneumonia when she developed suppurative mastitis, followed in a few days by paralysis of the legs and other symptoms indicating some severe process at about the eleventh thoracic vertebra, with sudden death two days after the onset of the paralysis.

Trench Fever, etc.—Wolff's article was prepared at the request of the Netherlands public health authorities, and presents the present status of our knowledge in regard to trench fever, P. U. O., febris wolhynica, five-day fever, and alternating fever. His references are mostly to German weeklies in the last two years, with the British, and the American report on trench fever.

Mededeel. v. d. Burg. Geneesk. Dienst, Batavia

1918, No. 6, Edition in English

*Blastomycosis of Brain. P. C. Flu and M. M. G. Woensdregt.—p. 1.
*Questions of Water Supply. Eijken.—p. 27; 46; Id. and Jansen.—p. 40.
*Fat-Soluble Vitamins in Coconut Oil. B. C. P. Jansen.—p. 78.
Fecal Carcoma. B. C. P. Jansen.—p. 95.
*Is Vitamin Identical with Secretin? B. C. P. Jansen.—p. 99.
Filariasis in Netherlands-Indies. P. C. Flu.—p. 105.
*Agglutinating Flexner Bacilli by Normal Serum. P. C. Flu.—p. 111.
*Intestinal Parasites in Natives of Java. P. C. Flu.—p. 113.
Blood Stains under Direct Sunshine. P. C. Flu.—p. 117.
Phenol in Leaves of Coleus. F. Weehuizen.—p. 120.
*Flexner Bacilli Carriers. P. C. Flu.—p. 123.
Meningococci Carriers. P. C. Flu.—p. 138.
Microchemical Tests for Traces of the Counterfeiting of Coins. F. Weehuizen.—p. 156.
Error in Benzidin Test for Occult Blood. F. Weehuizen.—p. 159.
Adulteration of Fresh Milk with Condensed Milk, etc. F. Weehuizen.—p. 161.
*Protozoa in Human Intestine. P. C. Flu.—p. 164.

Blastomycosis of Central Nervous System.—Flu thought at first that the symptoms of the Chinese man were those of typhoid, especially as agglutination was decided at 1:400. Two days later meningitis seemed more probable, but lumbar puncture soon revealed blastomycetes in the spinal fluid, and necropsy disclosed foci of blastomycetes in the brain substance and in the pia of both brain and spine. The primary invasion seemed to have been at the base of the brain, and no blastomycetes were found elsewhere in the body except in the tonsils and mucosa of mouth and palate. It is plausible to assume that the blastomycetes made their way by the lymphatics from the tonsils to the base of the brain. They did not seem to cause any inflammatory reaction in the nervous tissues.

Water Supply Suggestions.—Eijken's advice in the specific case of pollution of the river water from a distillery is to drain the waste waters from the distillery by a separate pipe into the sea or else condense the waste into solid matter which can be used for fertilizer or burned to produce potash. In a second article he relates that in Java wells are frequently used of the Norton type, that is, wide iron pipes are sunk in the ground to a depth of about 48 feet. The lower 30 feet are perforated, and the water is pumped up and can be conveyed to a reservoir. He has recently simplified this method by sinking the pipes into existing wells and then filling up the wells with gravel nearly to the top, concluding the filling with sand. The ground is not suited for the Norton wells in many places, and he is confident that these gravel wells will be found of great service on plantations and elsewhere where it is impossible to secure reliable drinking water by other means. The diameter of the well can be enlarged as the need for water increases.

Vitamins in Coconut Oil.—Jansen's experiments were made on young rats. The outcome shows no growth-producing influence, and hence he assumes that coconut oil is poor in fat-soluble vitamins.

Is Vitamin Identical with Secretin?—Jansen's experimental research answers this question in the negative.

Agglutination of Flexner Bacilli by Normal Serum.—Flu reports positive agglutination at from 1:75 up to 1:900 in all but fourteen of 107 normal persons whose serum was tested at Weltevreden in Java. The tests with the Shiga-Kruse bacilli were negative in all but four of the same group.

Prevalence of Intestinal Parasites in Natives of Java.—Flu stated some time ago that he believed flies had some part in the distribution of amebas, and recent investigation of 941 inhabitants of native villages has confirmed this assumption. As the conditions for sanitation are extremely unfavorable in the native homes, it is evident that flies take a great share in the spread of ameba enteritis. This at the same time explains how the disease can spread to the homes of Europeans near by, although the latter take every precaution to have good drinking water. He found cysts of the tetragena (*Endameba histolytica*) in 10 per cent., accepting as such only those cysts 10 to 15 microns in diameter, with from one to four nuclei and the rodlike chromidia in the protoplasm characteristic of the tetragena. The prevalence of ascaris in 50 per cent. shows that opportunity for contamination with feces is present in excessive degree, and this renders the outlook for amebic enteritis even graver. The trichocephalus was found in about 33 per cent. and the ankylostoma in about 20 per cent.

Carriers of Dysentery Bacilli.—Flu has been unable to find records of healthy carriers of the Flexner or Y bacilli of dysentery. The carriers known to date seem to be all sufferers from chronically recurring bacillary dysentery. The Flexner bacillus seems to thrive on bile. Both this bacillus and the Y bacillus have recently been found in the general circulation in a number of cases. He queries where the dysentery bacilli remain during the latent intervals, and urges examination of the bile in all dysentery cadavers, as there is a possibility that the bacilli infest the biliary organs and may lurk here when the subject seems entirely cured. He knows of only one instance in which the bacilli were found in a cadaver with absolutely normal intestinal mucosa. They were of the Y type and were found in the bile only.

Protozoa in Human Intestine.—Flu has made a special study of this subject in the last few years, and here describes his findings. The *Ameba limax* does not seem to be pathogenic; it sometimes disappeared spontaneously from the stools without any improvement following in the clinical condition. His research on the blastocysts common in the stools examined confirmed their blastomycetic nature. But other cysts which closely resembled them proved to be forms of degeneration of tetragena cysts. His analysis of the literature and his illustrations confirm this assumption.

Hospitalstidende, Copenhagen

Nov. 6, 1918, **61**, No. 45

*Roentgen Treatment of Sarcoma. T. Eiken.—p. 1553.
Types of Tubercle Bacilli in Skin Tuberculous Lesions. C. W. Andersen.—p. 1574. Cont'n.

Roentgen Treatment of Sarcoma.—Eiken reviews the experiences at Rovsing's private clinic with roentgen treatment of sarcoma. One patient with a sarcoma originating in the diploë was given twenty-one open exposures, and the tumor which had spread to involve the dura and the cortex of the brain retrogressed completely. At present, four and one-half years after the operation, the man seems to be free from the least sign of recurrence and has full earning capacity. Eiken reviews further the publications of other Scandivanian writers on this subject; and reports a recent series of four cases. Two are in young men and the sarcoma was too far advanced for a complete cure, although benefit was derived. In all four cases the sarcoma displayed great sensitivity to the rays, and if the treatment could have been begun earlier it might have been effectual in all four cases. The third patient in the group was a boy of 7 with a sarcoma in the orbit. It was removed by Krönlein's plastic technic, without injury to the eyeball, and there has been no sign of recurrence during the two years since. He recently returned with a painful tumor in the upper arm, and roentgen treatment was promptly applied with a total of 70 H units, and normal conditions were apparently restored, except for slight changes visible only with roentgenoscopy and not palpable. The eye that had been operated on seems to be normal and the boy is otherwise strong and well. The roentgen treatment in this case had been begun two months after the first signs of the tumor. The microscope showed it to be a round cell sarcoma. The fourth patient was a woman of 31 with a cystic, painful lesion in the lowest portion of the femur. It had given trouble for seven years, and an accumulation of blood and part of one meniscus had been removed after a fall on the knee. The roentgen ray cast a shadow suspicious of sarcoma, but the long duration of the cystoma rendered this improbable. On the assumption of fibrous ostitis, the cyst was curetted and filled with 1 per cent. silver nitrate solution. The microscope then revealed that the lesion was a spindle cell sarcoma; for this the operation had been by no means radical enough. Before attempting a mutilating operation, a course of roentgen exposures was made. The condition in the knee afterward was much better than it had been for many years, and there has been no sign of recurrence or further disturbance during the eighteen months since. This combination of operation and roentgen treatment promises good results, especially when the lesion permits cross-fire exposure, as in the orbit. His case seems to confirm that the rays do not injure the eye. The boy's eye was exposed to large doses, without any appreciable by-effects. A preceding chemosis, which had followed the operation, subsided smoothly under the roentgen exposures. The reports to date on exposure of the eyeball are rather contradictory. In Gocht's case a melanosarcoma had been removed from the orbit and there had been no recurrence for nine years to date of writing.

Ugeskrift for Læger, Copenhagen

Nov. 28, 1918, **80**, No. 48

Nirvanol. Geill.—p. 1877.
*Respiratory Exercises in Influenza. V. E. Holm.—p. 1881.
"Barbed-Wire Disease." A. Kissmeyer.—p. 1882.
*Arc Light Treatment of Laryngeal Tuberculosis. N. R. Blegvad.—p. 1910.

Deep Respiration in Influenza.—Holm noticed in his own person after an attack of bronchopneumonia that he experienced great relief after exercise in climbing that had made him pant. He then systematically practiced deep breathing exercises, and found his convalescence much hastened. He has since recommended the same to patients with acute or chronic pulmonary affections, teaching them how to breathe deep and repeat this exercise several times a day. None died in the thirty-six cases of pneumonia among his 400 influenza patients except one woman in childbirth. He would like to know if others have found respiratory exercises useful in pneumonia, etc. If so, more stress should be laid on deep respiration in treatment of pulmonary affections.

Phototherapy of Laryngeal Tuberculosis.—Blegvad gives an illustrated description of twelve cases of tuberculous lesions in the larynx in which courses of universal arc light baths were given by the technic used at the Finsen Institute. The lesions retrogressed so completely in six of the twenty-four cases that the outlook for this treatment seems very encouraging in a certain proportion of cases. In five cases no benefit was apparent, but he has not given up hope yet in all of them. (His report is in the Society Proceedings section.)

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GENERALIZED INTERSTITIAL EMPHYSEMA AND SPONTANEOUS PNEUMOTHORAX

AS COMPLICATIONS OF BRONCHOPNEUMONIA

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In the recent epidemic of influenza and bronchopneumonia at Camp Lewis, extensive subcutaneous and interstitial emphysema has occurred in nine patients as a complication of bronchopneumonia. The clinical picture of this emphysema, extending up over the neck, face and scalp, and down over the chest and trunk to the pelvis, and even to the external genitalia, is of such rarity and interest that the cases are here reported. Spontaneous pneumothorax has developed in two patients having extensive bronchopneumonia. That there is a relationship between these two conditions and that they are produced by similar pathologic processes has seemed likely. One case, in fact, presented, at different times, both of these complications. In this paper we are presenting an explanation of the mechanics of these unusual complications.

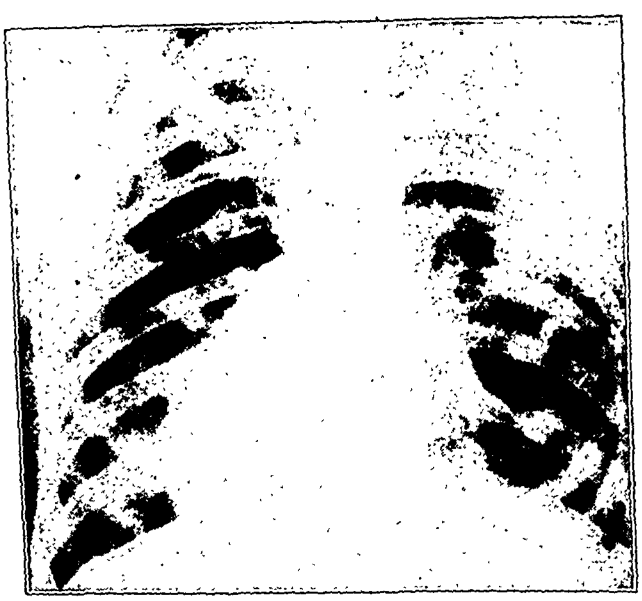

Fig. 1.—Chest in extreme generalized emphysema. Bronchopneumonia of entire right lung. Note lack of pulmonary detail due to air in subcutaneous tissues. Marked air dissection in both axillae.

In each instance, the diagnosis of our cases of bronchopneumonia has been corroborated by roentgenography, and, in fatal cases, by necropsy. Early in the epidemic it was recognized that the type of pneumonia with which we were dealing was not the type that is usually found in vigorous young adults, characterized by an acute onset with a chill followed by fever and rapid respiration. The clinical picture has, however, been one of a fairly set type. The usual onset is with general malaise over a period of from twenty-four to forty-eight hours, more or less diffuse body pains, aching joints, cough and chilliness. On admission, as a rule, the patients appeared only moderately ill. The initial temperature was rarely over 101 F. The physical signs in the lungs were often scant, so much so in some cases that they were recognized as definite pneumonias by the ward surgeons only after they had been in the hospital for from twenty-four to forty-eight hours. At this time definite lung findings were usually present, such as impaired resonance or dulness over the affected part, with either harsh or diminished breath sounds and, on inspiration, showers of fine, moist râles. A discussion of the physical signs and the diagnosis of the type of pneumonia occurring in this epidemic will be given in a subsequent paper.

After three or four days in the hospital, the greater proportion of the patients showed a marked improvement and went on to an uninterrupted recovery. In the other cases at the same time there was a tremendous extension of the process, and the condition at once became critical. It was among the latter group that the occurrence of interstitial emphysema and spontaneous pneumothorax were noted.

That our cases of pneumonia have been milder than the cases in other camps is evidenced by our mortality rate, which, at the present writing, is 9.22 per cent., or 157 deaths.

LUNG INVOLVEMENT

The patients developing emphysema or pneumothorax, for the most part, had extensive lung involvement as is shown by Table 1.

In Table 2 is shown the extent of the emphysema, together with the prominent symptoms that were apparently associated with its development. The severity of the paroxysms of cough in these cases was well demonstrated by the occurrence in one case of a rupture of the rectus muscles, and in several other cases by definite hemorrhages into these muscles. A sudden severe paroxysm of cough with pain in the chest and the spitting up of frothy, bloody sputum seemed in several cases to mark the onset of the emphysema.

Two other cases of emphysema occurred that have not been included in Table 2. One of these presented emphysema as a complication after a thoracotomy for empyema, and the other showed an emphysema following pneumothorax and thoracotomy. In both of these cases there was an extensive bronchopneumonia of the lung on the unoperated as well as on the operated side. The development of the emphysema in both of these cases, though following operation, was precisely similar to the development of the emphysema in our other cases. That there was probably *no* direct relation between the operation, per se, and the development of the emphysema will be pointed out later.

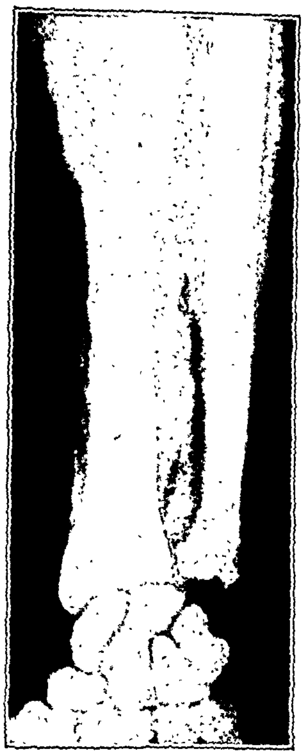

Fig. 2.—Extensive dissection of subcutaneous tissue and muscle sheaths, typical of emphysema.

BACTERIOLOGIC FINDINGS

It has been a routine in this hospital to obtain sputum cultures in all cases of pneumonia when satisfactory specimens could be obtained. Also, in case of death, cultures are taken at the time of necropsy. It has not been possible to establish any relationship between the causal organism in a case of pneumonia and the development of emphysema or pneumothorax. In Table 3 are given the bacteriologic findings in the cases reported.

ONSET AND EXTENSION OF SUBCUTANEOUS AND INTERSTITIAL EMPHYSEMA

Without exception the emphysema was first noted in the soft tissues at the episternal notch or above one or both clavicles, spreading from these points to the neck, face, scalp, chest, arms and trunk.

That this was a true subcutaneous and interstitial emphysema and not a gas bacillus infection was at once established by the absence of inflammation, by the clinical progress and by roentgenograms. In gas bacillus infection it has been clearly demonstrated by roentgenoscopy that the gas is diffusely distributed throughout the entirety of the involved tissues, whereas in emphysema the air is found to dissect its way along blood vessel and muscle sheaths in the line of least resistance. In Figures 1 and 2 are shown reproductions of the roentgenographic findings.

TABLE 1.—LUNG INVOLVEMENT IN CASES IN WHICH EMPHYSEMA OR PNEUMOTHORAX DEVELOPED

Case No.	Lobes Involved					Complication
	R. U.	R. M.	R. L.	L. U.	L. L.	
25540	+	+	+	0	+	Emphysema
27201	+	0	0	+	+	Emphysema
27365	+	+	+	+	+	Emphysema
27975	+	+	+	+	+	Emphysema
28670	+	+	+	+	+	Emphysema
29129	+	+	+	+	+	Emphysema
29292	+	+	+	+	+	Emphysema
29940	0	0	+	0	+	Emphysema
31158	+	+	+	+	+	Emphysema
24932	+	+	+	+	0	Pneumothorax
30274	T. B.	0	+	T. B.	+	Pneumothorax and emphysema

It is interesting to note that, with this extensive dissection, the patients complained of very little pain and little or no tenderness over the emphysematous areas. All patients did, however, complain of choking sensations.

MECHANISM OF THE PRODUCTION OF EMPHYSEMA AND PNEUMOTHORAX

It is of considerable interest to know just how the emphysema and pneumothorax are produced. It seems probable, as both conditions were found in the same patient at different times, that the same factors that produce one may produce the other.

TABLE 2.—EXTENT OF EMPHYSEMA, WITH PROMINENT SYMPTOMS

Case No.	Extent of Emphysematous Involvement										Symptoms at Onset	Outcome of Case
	Supraclavicular Space	Infraclavicular Space	Neck	Face	Scalp	Arms	Chest	Trunk	Genitalia	Thighs		
25540	+	+	+	+	+	+	+	+	+	+	Severe cough; bloody sputum	Recovery
27365	+	+	+	+	0	+	+	+	0	0	Choking; sharp pain in chest	Death
27975	+	+	+	+	0	0	0	0	0	0	No notes	Death
28670	+	+	0	0	0	0	+	0	0	0	Severe cough; bloody sputum	Recovery
29129	+	0	+	0	0	0	0	0	0	0	No notes	Death
29292	+	+	+	+	+	+	+	+	+	0	No notes	Death
29940	+	+	+	0	0	0	+	0	0	0	Severe cough; bloody sputum	Recovery
31158	+	+	+	0	0	0	+	0	0	0	Sharp pain	Death

In passing from the lungs to the chest wall the air may follow one of two routes, which may be termed (1) the intrapleural route and (2) the extrapleural route.

1. *The Intrapleural Route.*—For air to pass from the lungs to the chest wall by this route, it must pass through both the visceral and the parietal pleura. To pass through both the visceral and parietal pleura without producing a pneumothorax it must be assumed that adhesions between these membranes exist at some area and that the passage of air occurs at this point. At necropsy this seemed the possible route in but one case (27201). In this case air could be easily forced out of the lung at a point where recent adhesions had

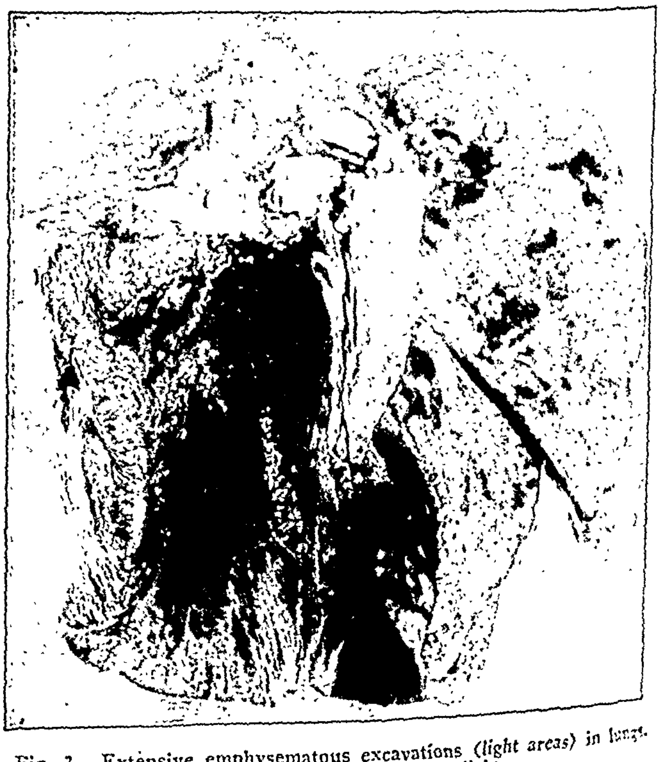

Fig. 3.—Extensive emphysematous excavations (*light areas*) in lungs. Plate taken under ray filter to eliminate *high lights*.

formed and where the parietal pleura at the corresponding point was found to be lifted up by air. It was apparently possible, in this case, to demonstrate that a direct passage of air occurred in this manner. We are of the belief, however, that this is rarely the route taken.

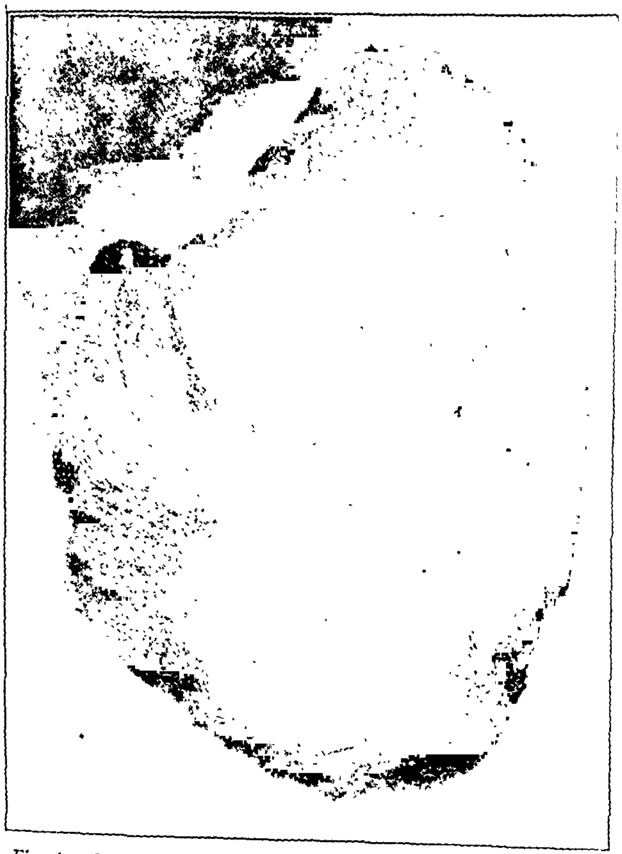

Fig. 4.—Roentgenogram of excised lung, showing well-marked emphysematous excavations especially along the lung periphery. Note especially the collapsed upper lobe and the central consolidation of lower lobe.

2. *Extrapleural Route.*—For air to gain access to the mediastinum from the lung without passing through the pleura, it would be necessary to assume a rupture of an air sac and a dissection of air from this sac back to the hilum.

TABLE 3.—BACTERIOLOGIC FINDINGS IN CASES REPORTED

Case No.	Type of Pneumococcus	Type of Streptococcus	B. Influenzae	Tubercle Bacillus
25510	IV	0	+	0
27201	0	Nonhemolytic	0	0
27363	IV	Nonhemolytic	+	0
27975	IV	Nonhemolytic	0	0
28670	IV	Nonhemolytic	0	0
29129	IV	Nonhemolytic	+	0
29292	0	Nonhemolytic	0	0
29940	IV	Nonhemolytic	0	0
31158	IV	Nonhemolytic	0	0
24932	IV	0	0	0
30274	IV	0	0	+

Ruptured air sacs in the peripheral borders of the lung have been found frequently at necropsy. In many cases numerous adjacent air sacs have ruptured, forming a large air space, aptly termed "emphysematous excavations" by our roentgenographer, Capt. F. E. Diemer. On removal of the lungs, these excavated areas were found to be distended and covered by tense pleura. Leading off from these excavations were "air streaks" (a term suggested by Capt. M. C. Terry), definitely following the course of blood vessels. Air could be readily forced from the air spaces to the air streaks.

Dissection of the lung also showed that these air streaks could be traced along the course of blood vessels to the hilum. Also, by exposing the hilum of the lung extrapleurally without rupturing the bronchus, and submerging it in water, it was possible, by gently squeezing the lung, to force bubbles of air out at the hilum, the bubbles rising from around the blood vessel walls. This was accomplished through the mediastinum, with the lungs still in place in the chest cavity. Thus it is seen that, with a valvelike entrance from a bronchiole into an air space, a continual flow of air will be produced from the parenchyma of the lung to the soft tissues of the posterior mediastinum. From the posterior mediastinum the air dissects its way to the superior mediastinum, and enters the subcutaneous tissues of the neck and axilla by following the blood vessel sheaths through the deep fascia.

Many cases that did not show a pneumothorax or an emphysema of the chest wall were found at necropsy to have numerous excavations of varying size. They were so extensive in some instances that the lingula or the entire anterior margin of the lobes appeared to be blown up with air. A photograph of one of these lungs is reproduced in Figure 3. Also, by taking roentgenograms of the lung after removal it was possible to show these areas fairly well. A reproduction of one of these plates is given in Figure 4. This is contrasted in Figure 5 with a similar roentgenogram of an ordinary emphysematous lung.

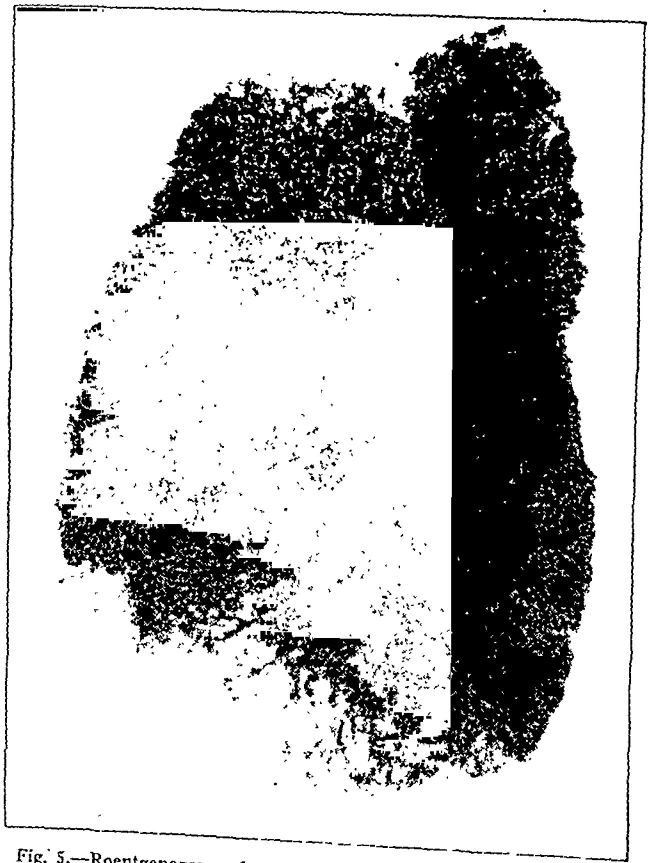

Fig. 5.—Roentgenogram of an excised lung, showing a true pulmonary emphysema without emphysematous excavations. Compare with Figure 4.

It was also possible, by roentgenograms, to show excavated areas in certain of the more marked cases during the life of the patient (Fig. 6). The future of these patients, showing emphysematous excavations, who eventually recovered from their pneumonic infection, presents an interesting problem. One patient, now quite convalescent, still shows these areas by roentgenoscopy. Whether they will eventually contract down and close by scar tissue formation, or will develop into bronchiectatic cavities, only time will tell.

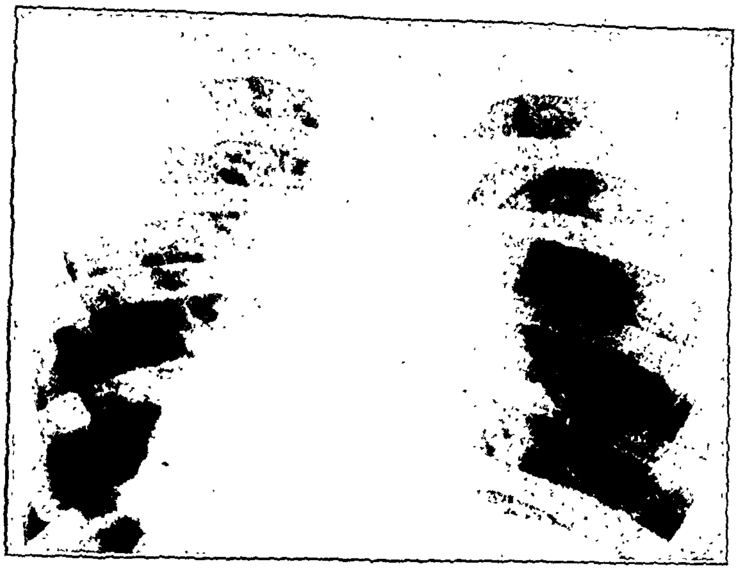

Fig. 6.—Roentgenogram in a case of bronchopneumonia (resolved, both bases), showing an emphysematous streak along the course of a blood vessel in midportion of right lung field.

PNEUMOTHORAX

As stated above, it seemed likely that the same process that resulted in emphysema in one case might in another result in a pneumothorax. With the formation of the emphysematous excavations on the peripheral border of the lungs, the pleural covering was lifted and put under considerable tension. From these points the dissection of air toward the hilum took place. In paroxysms of coughing the pressure within this space was, of course, considerably increased. Any obstruction to the dissection of this air along the vessel sheaths, or an increase in pressure that exceeded the rate of outlet by dissection, would result in a rupture of the pleural covering of this air space, and a pneumothorax would result. This condition occurred in two of our cases. The roentgenograms of these cases are given in Figures 7 and 8. The pressure fluid present in both of these cases may possibly have been the reason for the delayed escape of air from the air spaces by dissection along the vessel sheaths. In Case 30274, however, tuberculosis must be borne in mind as a possible cause for the pneumothorax.

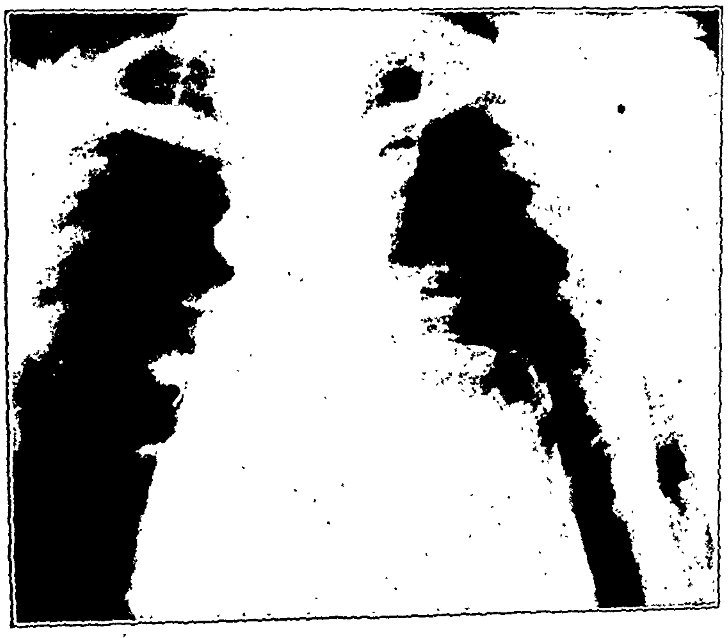

Fig. 7.—Roentgenogram in case of pneumothorax after thoracotomy for relief of pressure. By fluoroscopy prior to thoracotomy the right lung was markedly compressed and the heart pushed to the left. The lung is in the position of collapse and the heart is not displaced.

The symptoms in the two cases of pneumothorax varied widely. Patient 24932, coughed frothy, bloody sputum for three or four days, but showed little or no discomfort, while Patient 30274 was extremely dyspneic. To relieve this dyspnea a thoracotomy was done. Stereoscopic examination in this case prior to thoracotomy showed the right lung to be markedly compressed and the heart forced markedly to the left. After thoracotomy the lung expanded to the position of collapse and the heart returned to its normal position (Fig. 7). Six hours after the thoracotomy a well-marked emphysema was found in the suprasternal notch and above the clavicle on the right side, although careful search revealed no emphysema around the operative wound. It is believed that the marked pressure of the pneumothorax on the hilum prevented the exit of air from the hilum of the left lung, and that the release of this pressure by thoracotomy allowed its escape into the mediastinum with the resultant emphysema.

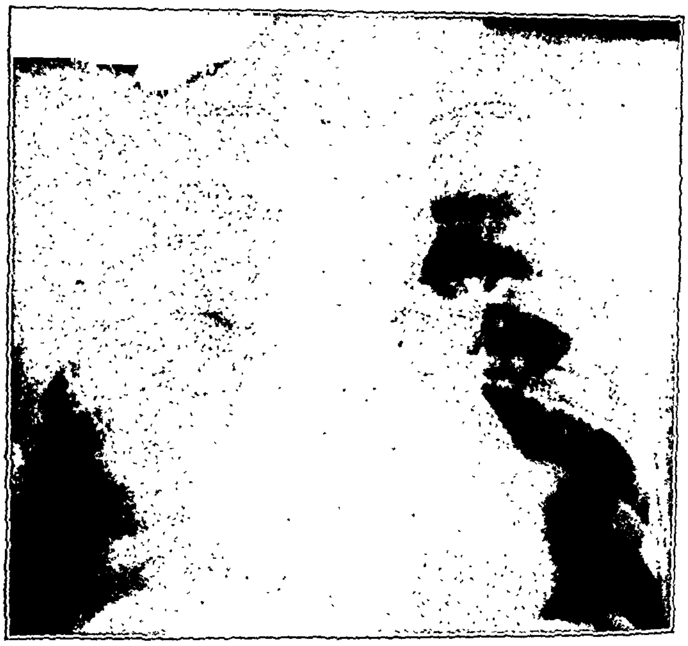

Fig. 8.—Pyopneumothorax. Exposure made with patient in prone, postero-anterior position. The decrease in radiability over the pneumothorax is due to the fluid present. The right upper lobe is not collapsed, owing to the well-marked pleural adhesions. Note the heart displacement and lung compression due to pressure of the pneumothorax.

A similar explanation is offered for the development of the emphysema, postoperatively, in Case 27201 (Fig. 9). It is assumed that the fluid in the left chest caused a compression of the hilum, thus preventing the escape of air until thoracotomy had been done. The emphysema first developed on the side opposite to the operative wound, and no emphysema was noted about the wound. It was on the unoperated side in this case that it was apparently possible to show the direct passage of air through pleural adhesions to the chest wall.

COMMENT

The rarity of the two unusual complications of bronchopneumonia described in the foregoing is emphasized by their occurrence in only eleven out of 1,701 cases of bronchopneumonia seen at this hospital during the recent epidemic.

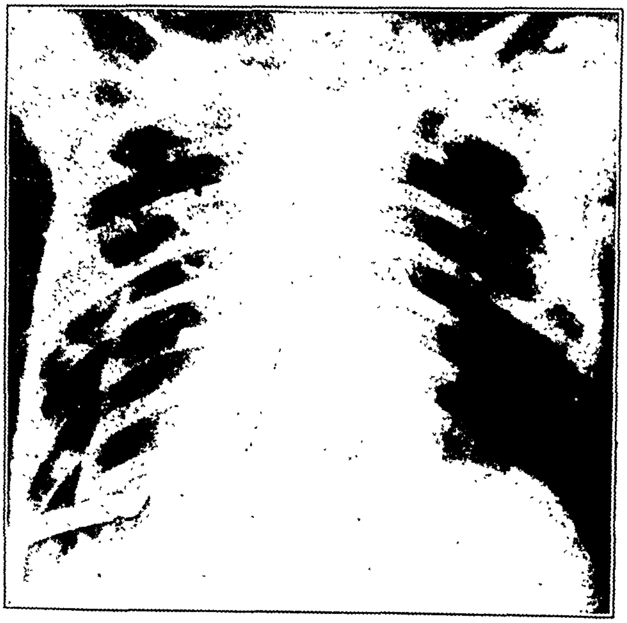

Fig. 9.—Extensive emphysema developing after thoracotomy for empyema. Note equal air dissection in both axillae. Clinically the emphysema was first noted above the right clavicle (operation on left side). No emphysema around operative wound. Pneumonic process not visible, owing to the marked emphysema.

PREVENTION OF RELAPSES IN CASES OF ARRESTED TUBERCULOSIS AMONG SOLDIERS [*]

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Relapses from tuberculosis in the civilian population, particularly among the working classes, present a most difficult medical and economic problem; but when we are dealing with soldiers and sailors, that is to say, young men between the ages of 20 and 36, representing the flower of the manhood of the nation, it becomes all the more serious. In my address on "Blinded Soldiers as Masseurs," read before the Conference on Rehabilitation of the Wounded in Philadelphia, Sept. 20, 1918, I[1] endeavored to throw out some suggestions as to the possible solution of the study of the various phases involved and a description of some therapeutic methods whereby it is hoped to reduce the number of relapses among tuberculous soldiers and sailors and, if possible, to shorten the time necessary to attain a reasonable security against any recurrence of the old trouble, thus aiding an early and permanent rehabilitation.

Not only we so-called tuberculosis specialists, consultants or sanatorium physicians in civil practice, but also that splendid corps of men and women who are our collaborators in solving the social problems of tuberculosis, know of the frequency of relapses among those who are sent home from the sanatoriums or health resorts as arrested or apparently arrested cases. However, it is not the fault of the sanatorium physicians or practitioners in climatic health resorts that in many cases which have been discharged as arrested, relapse occurs sooner or later and sometimes after relatively short periods. The vast majority of our tuberculous patients leave our sanatoriums and resorts too soon because of economic necessity and their eagerness to return home in order to make a living for themselves or their dependents. I am sure that if it were in the power of the sanatorium authorities or practitioners in the health resorts to retain them longer, many relapses would be avoided.

The patients that are discharged or discharge themselves as arrested or nearly arrested cases, are not considered even "apparent" cures. The definition of the term "apparent cure" is that all constitutional symptoms and expectoration with bacilli shall have been absent for a period of at least two years under ordinary conditions of life. An arrested case is one in which all constitutional symptoms, expectoration and the bacilli have been absent for a period of six months, and the physical signs are those of a healed lesion. An apparently arrested case is one in which all constitutional symptoms and expectoration with bacilli have been absent for three months, the physical signs being those of a healed lesion.

For a long time I have asked myself, What can and should be done in order to shorten the period between the time when a case is arrested and when it can be considered cured? I have already absolved the sanatorium and health resort physicians from blame, but there is no denying the fact that a great number of patients return home, with the label "arrested case," whose muscles are flabby from the prolonged rest-cure on the

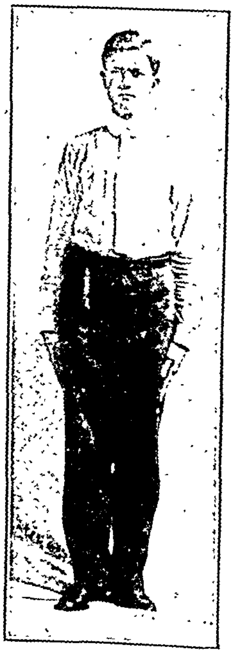

Fig. 1.—Original position.

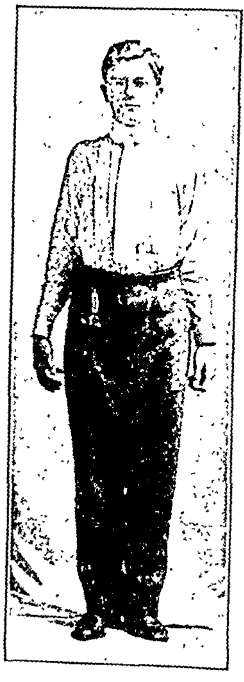

Fig. 2 (first exercise).—Raising the shoulders.

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[*] This article is abbreviated for publication in The Journal by the omission of some literary references. The complete article will appear in the author's reprints.

[*] Read before the North Atlantic Tuberculosis Conference, Pittsburgh, Dec. 7, 1918; before the Clinical Society of the New York Post-Graduate School, Jan. 17, 1919, and before the Section on Medicine of the New York Academy of Medicine, Feb. 18, 1919.

[1] Knopf, S. A.: Med. Rec. 94:709 (Oct. 26) 1918.

reclining chair, whose respiratory systems have become indolent because they could not and should not breathe deeply while their lesions were active. Very often the excellent climatic conditions that prevail in sanatoriums and health resorts have tended to increase the patient's sensitiveness to atmospheric changes, and not to heighten his resistance to the invasion of pneumococci and the minor respiratory infections, all of which tend to reawaken an arrested tuberculous lesion. Add to these the disturbing factors of the toxins (fatigue poisons) produced by overworked flabby muscles, and we need not wonder at the frequent relapses.

In some institutions hydrotherapy is employed, and this is after all our best means to fortify the circulatory, cutaneous and nervous systems against atmospheric changes and the invasion of micro-organisms through our respiratory systems; but in many sanatoriums nothing is thought of the value of the external use of cold water as a tonic to render the system immune, as far as it is possible, to so-called colds. In my humble opinion, hydrotherapy is a most important therapeutic agent in the treatment of tuberculosis, particularly during the period of convalescence after the arrest of the disease.

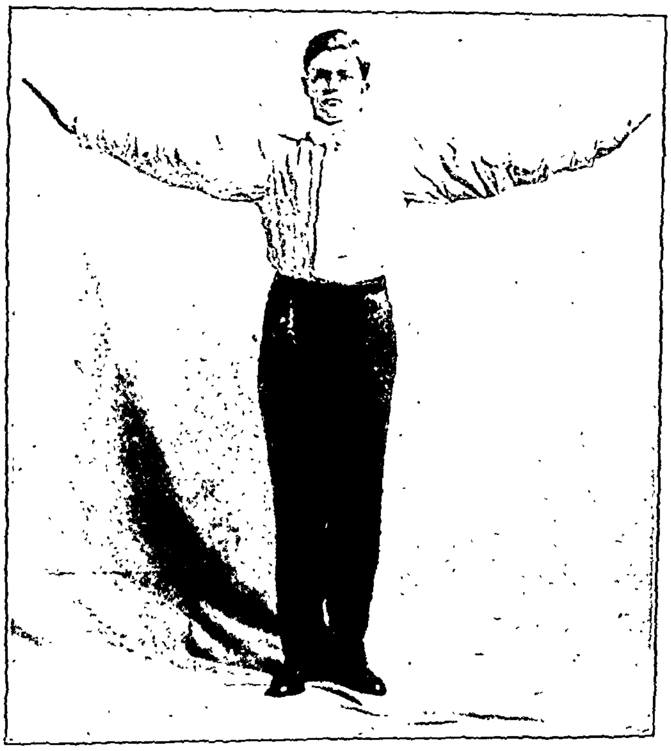

Fig. 3 (second exercise).—Arms horizontal.

VALUE OF MASSAGE

The same things may be said regarding that important part of our armamentarium for the treatment of numerous diseases in modern as well as in ancient medicine, known as massage, so sadly neglected by most of us in the management of tuberculous cases.

In my hospital practice in the city of New York, where I have to deal almost exclusively with advanced cases of tuberculosis, it is obvious that the application of massage is not feasible and but rarely indicated; the same holds good of routine hydrotherapy or respiratory exercises. But in private practice I have found massotherapy, hydrotherapy and respiratory therapy of the greatest value for convalescent patients and those returned from the sanatorium as arrested cases. During my student days in this country and abroad, it was my good fortune to have had opportunity to study massage and what is known as the Swedish movement cure. I have taught these valuable therapeutic adjuvants to many of my pupils and nurses; and in cases in which, for financial reasons, a professional masseur could not be employed, I have often succeeded in teaching a well member of the family how to apply the treatment to the tuberculous invalid. It was surprising to me to see how many men and women there are with a natural aptitude for this work. In some instances they developed into experts so that I could employ them advantageously in other families.

Because of the skill acquired by some of my assistants, nurses, and friends of patients and their willingness to apply massage to that class of invalids, I believe I have had considerable success in guarding arrested cases from relapses and in preparing them for more active physical exercise and work, particularly when hydrotherapy and carefully graded respiratory exercises could be added to the massotherapy. After all, we must admit that in spite of our advance in serology and immunology, we have up to this date no medicinal agent or culture product that will protect the arrested case against a recurrence of the disease. Physiotherapy, that is to say, a judicious combination and application of massage, cold water, and graded breathing exercises, seems, up to this date, our only means to prevent relapses in arrested cases of pulmonary tuberculosis. It should be applied for a period of from four to six weeks after the case has been pronounced arrested. Individualizing in the postsanatorium treatment is as essential as in the sanatorium treatment proper. It is evident that such patients must also be taught that prudence, temperance and a hygienic mode of life must be the rule for their conduct ever after, if they do not wish to undo the good effects of the sanatorium and postsanatorium treatment.

Such postsanatorium treatment is not in any way intended to do away with the contemplated program of teaching our tuberculous soldiers a variety of trades and occupations before they leave the military hospitals, each occupation adapted to the individual so that it will be most conducive to the preservation of his health and helpful in reestablishing his earning capacity.

It was more than gratifying to me to learn from my esteemed teacher and friend, Prof. Hermann M. Biggs, whose many years' experience with work-therapy at the Otisville Sanatorium entitles him to express an authoritative opinion, that he agrees with me as to the value of combining the three important adjuvants in phthisiotherapy to prevent relapses. In a letter to me he writes:

> In my opinion, massage, graded respiratory exercises, and hydrotherapy judiciously applied are often of great service in the treatment of arrested cases of pulmonary tuberculosis.

In connection with this endorsement of the value of massage, may I call attention to the fact that all the objections that confront us in applying massage in private practice, in sanatoriums or in civil hospitals, such as financial considerations, unwillingness of the patient to remain, scarcity of masseurs, or phthisiophobia on the part of the latter, need not enter into consideration when we deal with our war heroes, the tuberculous soldiers.

I have the assurance that a number of war blinded soldiers will be trained as masseurs in U. S. Base Hospital No. 7 for the Blind at Roland Park, Baltimore, which is under the able direction of Lieut.-Col. James Bordley. If this hospital should not be able to provide a sufficient number of masseurs for our tuberculosis work, there will be among our maimed heroes a number who have received injuries to the lower extremities and other types which might be found who could be trained as masseurs. Any unwillingness to remain under medical supervision, when as complete a recovery as can be expected is not attained, is met by the bulletin issued by the Surgeon-General, which reads: "Hereafter no member of the military service disabled in line of duty, even though not expected to return to duty, will be discharged from service until he has attained complete recovery, or as complete recovery as it is to be expected that he will attain when the nature of his disability is considered." Phthisiophobia in the blind need not be feared, nor in any other one-time soldier who has learned to obey and who will believe his officers when they assure him that the contact with a clean, conscientious tuberculous patient, particularly an arrested case that has had sanatorium training, cannot be in the least dangerous to a masseur. The matter of expense to the government which the employment of a number of masseurs would entail in the rehabilitation of the tuberculous soldier and making him a bread winner again, able to support himself and his family and become a useful citizen, is, of course, something that can be considered only as an ultimate advantage. Economy in such matters as these is unworthy of a great country such as ours, a generous republic willing to do all it can do for its soldier citizens who have fought and suffered for their country's and humanity's sake.

This paper would be incomplete were I not to describe massage, the method of applying hydrotherapy, and the graded respiratory exercises indicated in cases of arrested pulmonary tuberculosis.

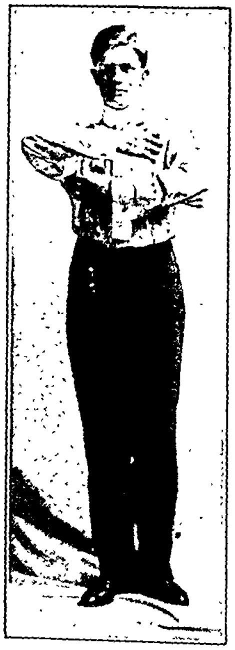

Fig. 4 (third exercise). —Arms in front of chest.

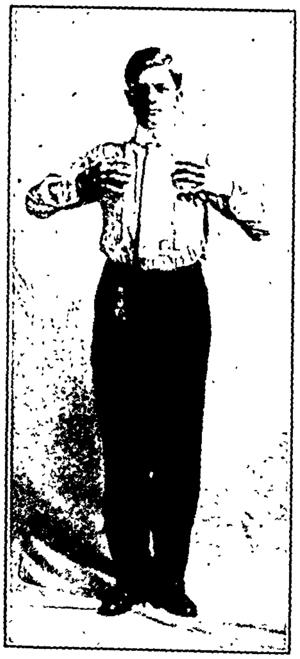

Fig. 5 (third exercise).— Tapping the chest.

CHARACTER OF MASSAGE INDICATED IN ARRESTED TUBERCULOSIS

The room in which the patient is to be massaged should be comfortably warm and always well ventilated. To avoid unnecessary exposure it is well to have handy, besides the ordinary bed covering, a shawl or small blanket to protect the parts of the body that are not manipulated at the time. Whether or not to use white petrolatum or talcum powder for the purpose of lubrication will depend largely on the skin conditions of the masseur or patient. As a rule, lubricants are not necessary. The patient should be placed on a moderately high table, or bed with no springs. The height of the bed or table should be suited to the height of the operator. The latter must be able to bend over the patient comfortably and to exert a moderate amount of force without getting too tired himself. A low bed with a spring cannot be used for applying massage scientifically.

The classical books on massage teach a variety of movements, such as effleurage (stroking), friction, pétrissage, vibration and tapotement (hacking). I believe that for the average convalescent or arrested tuberculous case in which general massage is indicated, the following simple movements suffice for all practical purposes: namely, friction, kneading, tapping and stroking. In the friction movement of the extremities, and as much as possible in all the others, the course of the venous circulation should be followed, and in abdominal massage one must have in mind the situation of the small intestine and the colon, so as to aid in overcoming a tendency to constipation. This is done by making a circular motion around the umbilicus from right to left. The colon should be manipulated separately, following its course along the ascending, transverse and descending portions. This massage of the abdominal wall, particularly when there is little adipose tissue, should be more gentle than that of any other portion of the body, and should be supplemented by teaching the patient to retract and relax the diaphragm alternately, holding it for several seconds in the retracted position so as to strengthen all the abdominal muscles.

Of course the massage of no matter what organ should be done with the patient in a recumbent position and in complete muscular relaxation. In giving a general massage it is always best to begin with the lower extremities, starting with the toes from joint to joint, and next to take the plantar and dorsal surface of the foot, from toes to ankle joint, then upward from ankle to knee joint, from knee to hip, and then the abdomen in the manner already described. Next in order are the head and neck, in which the manipulator must, of course, be more gentle than over the extremities. The hands, arms, forearms and thorax are manipulated in the order mentioned. Each finger is frictioned as far as the wrist articulation, then the arm from there to the elbow, and from the elbow to the shoulder. By a semicircular movement, with the palms of the hands and moderately spread fingers, one takes in by the friction movement as much as possible of the posterior and lateral portion of the thorax.

The friction from one joint to another should be applied about four times before beginning with the kneading, which method is explained by the name itself. One manipulates the muscles so as to lift them from the osseous attachment and in the same order as the friction movement. The third movement is the tapping, which may be done with the whole hand, the palmar surface of the four fingers, or if desirable to avoid the clapping sound produced by this movement, one may tap with the ulnar surface of the hand, producing a sort of chopping movement.

The stroking or soothing movement (effleurage) is the last of the four, and consists in gently passing over the entire surface of the body, encircling the extremities with one hand, or both hands, making the strokes over broad surfaces with the flat hand. A fifth movement consists of pinching the skin for the purpose of exciting the circulation and innervation of inert skin. This form of massaging the cutaneous surface must be done rapidly, at least at the rate of 100 a minute. One should grasp a fold of the skin and not relax it until it is seized by the finger and thumb of the other hand. This fifth movement is indicated in only a relatively small number of cases of arrested tuberculosis; but when it is used it should be followed by the effleurage. This stroking movement should always be the last.

The patient is now turned on his chest with either the right or left cheek resting on a small pillow so that he can breathe easily during the manipulation of the posterior muscles of the lower extremities, the thorax, arms, forearms, etc., in the same order as the anterior portion. If the masseur is tall and vigorous and the patient not larger than he, it is possible to apply the friction movement to both arms, both shoulders, and right and left portion of the thorax at the same time. This is done by placing the palms of the hands on the posterior portion of the patient's hands and making a good friction movement over the hands, forearms, arms, shoulders and the posterior portion of the patient's thorax.

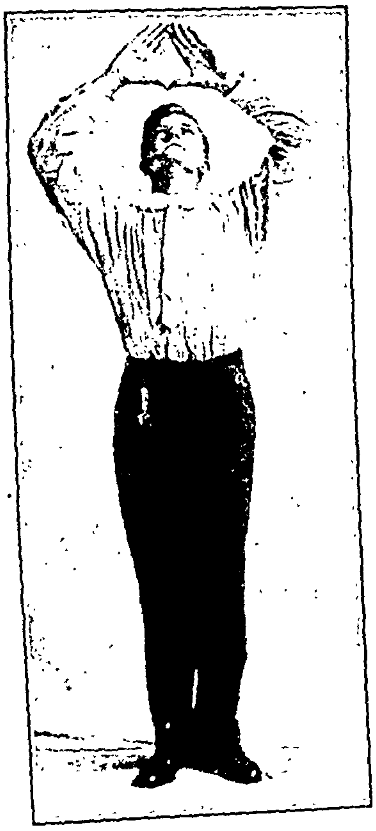

Fig. 6 (fourth exercise).—Arms above head.

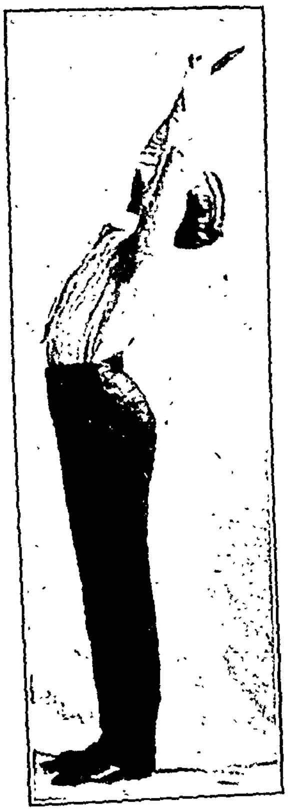

Fig. 7 (fourth exercise).—Bending backward.

The kneading, tapping and stroking movements will remain the same as for the anterior portion, with the only difference that the buttock and the posterior muscles of the trunk will stand a more vigorous massage than the anterior ones. Just as in friction, one should apply kneading, tapping and pinching not more than four times to each portion of the body, so that the time occupied for the entire massage of the body, anteriorly and posteriorly, should not exceed forty-five minutes. It is immaterial at what time the massage is given to the patient, as long as about one and a half or two hours have elapsed after the principal meals.

The so-called movement cure can, of course, be added to this general massage, and it is not difficult to teach or to apply. In applying it one must bear in mind the physiology of the joints and their natural limits of motion. These joint manipulations consist in assistive, passive and resistive movements of the extremities. Although helpful, they are hardly necessary in the average case of the recovered tuberculous invalid. They are often resorted to in certain nervous and rheumatic affections, especially in surgical and orthopedic practice, and should always be done under the guidance of the physician or surgeon in charge of the case.

Assuming that the arrested case of tuberculosis might be looked on as fairly sound physiologically, what, may we ask, is the effect of massage on the circulation, for example. "It rouses dormant capillaries, increases the area and speed of the circulation, furthers absorption, and stimulates the vasomotor nerves, all of which are aids and not hindrances to the heart's action and to nutrition in general."[2] Of course, massage cannot manufacture blood cells or coloring matter, but it can put in circulation those that are dormant in the system. Unless this is done there results the condition picturesquely described by the poet physician, the late S. Weir Mitchell, as "like the want of circulating money during times of panic, when gold is hoarded and not made use of, and interference with commerce and manufacturing results." Thus we find that the anemia, so often still persistent in the apparently arrested case, may be successfully combated by massage. I have already referred to the beneficial effect of massage on the flabby disused muscles.

METHOD OF APPLYING HYDROTHERAPY

We now come to the next most important measure in physiotherapy for the rehabilitation of tuberculous soldiers, namely, hydrotherapy. In applying any hydrotherapeutic measure to the arrested tuberculous case one must ascertain first whether or not the patient has been using cold water during his convalescent stage as an ablution, shower bath or dip, or in any other form, and at what temperature. Supposing the individual has never used cold water on his body, what are we to do in order to train him and be sure of reaction, and what is the simplest apparatus necessary so that this hydrotherapy can be applied anywhere?

The important precaution to be taken in such cases is not to chill the patient. As a beginning, the cold water application should be made in the form of an ablution, either in the morning when the patient arises from his bed, or in the evening after he has been in bed for about ten minutes and has become thoroughly warm. If necessary the bed can be warmed with the aid of a hot water bag, which may remain at the feet of the patient. It is also well to have the hydrotherapeutic arrangement as near the bed as possible. To this end one should use a circular English bath tub, about 3 feet in diameter and 10 inches high, and pour about 5 inches of water into it at about 105 F. The second part of this simple hydrotherapeutic arrangement consists of a wash basin full of cold water with a large sponge, placed near the larger basin on a table of ordinary height. The temperature of the cold water can vary from 40 to 85 F. From 40 to 45 is usually the temperature of the water coming out of the faucet. It is best to begin with the cold water at a temperature of 85 and then go down gradually 5 degrees every four or five days until a temperature of 40 is reached and borne comfortably. It is always well to have the windows closed and the room warmed while the patient is taking his cold water application. If in spite of all these precautions the patient should fail to react, the cold baths must be discontinued.

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[2] Graham, Douglas: Massage, Manual Treatment, Remedial Movements, Ed. 4, Philadelphia, J. B. Lippincott Company, 1913.

The ablution is applied in the following way:

At the beginning the orderly in attendance, and later on the patient himself, takes the sponge soaked in the cold water while the patient stands in the hot water, and squeezes out the sponge first over the back of the neck, then in front, over the thyroid, then over his left shoulder, and then over the right, so that the entire body has been bathed with cold water. The patient then dries himself quickly, not necessarily very thoroughly, with the aid of a large, rough towel, and returns *immediately* to the bed. Under the warm cover he will feel warm and the little moisture left on his body will soon dry. Through this procedure reaction is assured, and the patient rarely fails to feel comfortable and enjoy the cold water application. If the head should get wet accidentally, he should dry it thoroughly. This is a precaution the patient should always take whenever he has washed his head.

When the system has become accustomed to the water used in this way, the patient can safely resort to the application of a needle or shower bath, or can take a dip into the water as cold as it comes out of the faucet, provided he reacts favorably.

I have made extensive use of hydrotherapy with most gratifying results, and became enthusiastic concerning its beneficial effects in phthisiotherapy in my early career as assistant to Dettweiler in the Falkenstein Sanatorium. In speaking of and recommending hydrotherapy, I always like to insist that the plentiful ingestion of pure water, in preference to all other beverages, plays an important part in the success obtained with the external application of cold water.

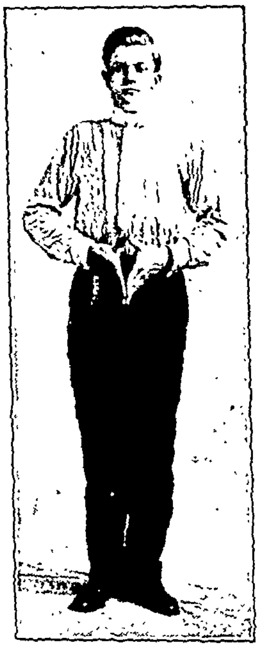

Fig. 8 (fifth exercise).—Hands in front, little fingers and edges of palms touching the abdominal muscles.

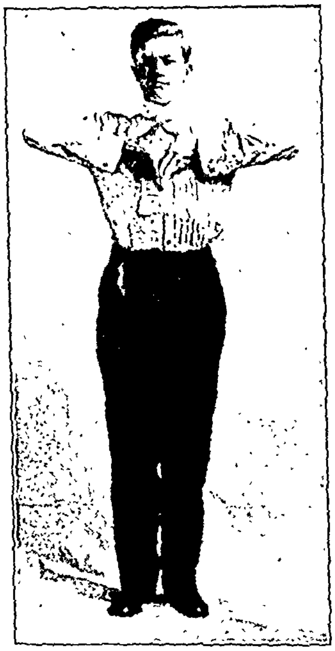

Fig. 9 (fifth exercise.)—Hands upward from abdominal position.

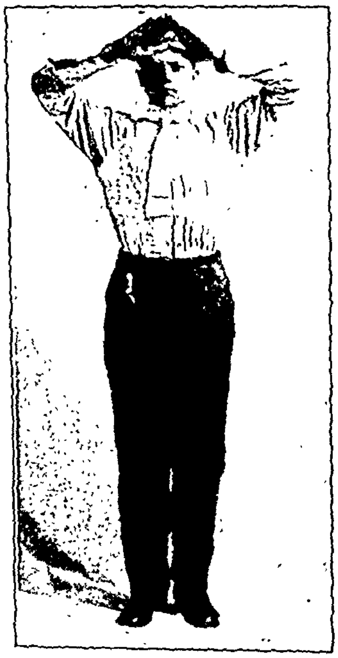

Fig. 10 (fifth exercise.)—Hands raised from chest and *turned*.

GRADED RESPIRATORY EXERCISES

Respiratory exercises should not be resorted to as long as there is activity in the chest. But since we are dealing only with nearly or entirely arrested cases in which all symptoms have disappeared, we need not fear any harmful effects from this part of our physiotherapy. Nevertheless, as will be seen, breathing exercises should be graded and the chest not violently but gradually expanded. The simplest of all exercises, one that can be taken even in bed or sitting on a chair, in a carriage or automobile, also without attracting the least attention while walking outdoors, since it requires no motion of arms, is as follows:

Raise the shoulders (Exercise A, Fig. 2), making a rotary backward movement during the act of inhaling; remain in this position holding the breath for four seconds, and then exhale while moving the shoulders forward and downward, assuming again the normal position (Fig. 1). When Exercise A is thoroughly mastered, begin with the following: In front of the open window or outdoors assume the position of the military "attention," heels together, body erect, and hands on the sides (Exercise B, Fig. 1). With the mouth closed take a deep inspiration (that is to say, breathe in all the air possible), and while doing so raise the arms to a horizontal position (Fig. 3), remain thus holding the air inhaled for from four to five seconds, and while exhaling bring the arms down to the original position (Fig. 1). The act of exhaling, or expiration, should be a little more rapid than the act of inspiration.

The act of inhalation occupies about four seconds, the act of exhalation about three seconds, and as has already been said, the act of retention of the air about five seconds. One counts mentally during these three acts so as to be systematic about holding the air. The hands may be moved upward and downward twice counting four, and on the fifth second one begins to exhale while lowering the arms.

When the second exercise (B) is thoroughly mastered, the third one (C) may be begun. Place the arms, one above the other, in front of the chest giving the hands the position as though wanting to tear the chest open (Fig. 4). Hands, arms and shoulders then make a backward movement (the fingers remaining bent) while a deep inhalation is taken. Count four by tapping the chest four times with both hands (Fig. 5) and at the fifth second start to exhale, bringing the hands and forearms into the position from which they started (Fig. 4). This exercise has the advantage that it can be taken in the sitting position or even when lying on the back.

The fourth exercise (D) consists in raising the arms from the sides (Fig. 1) to the horizontal (Fig. 3) and then above the head (Fig. 6), taking a deep inhalation during this act; then bending backward (Fig. 7) as far as possible and remaining in that position four seconds while retaining the air (counting the seconds by moving the hands alternately forward and backward twice) and on the fifth second exhaling gradually while resuming the original positions (Figs. 3 and 1). During this exercise when the arms are raised until the hands join, do not bring the arms close to the head, but form a sort of circle above the head by bending the elbows outward far enough so that the meeting of the index fingers and thumbs forms a triangle (Fig. 6).

The fifth exercise (E) is for the purpose of bringing the abdominal muscles also into play, or in other words, for combining abdominal and chest breathing. To this end assume an erect position, as in the beginning of all the exercises, let the hands meet in front with the little fingers and the edge of the palms touching the abdominal muscles (Fig. 8). While taking a deep inspiration raise the diaphragm, concentrating all attention on this act, and while doing so move the joined hands upward, sliding them along the thorax (Fig. 9) up to the chin. Next turn the hands (Fig. 10) and continue to raise them until they are above the head (Fig. 6); bend backward (Fig. 7) during the four seconds while retaining the air and then exhale, lowering the arms gradually to the horizontal (Fig. 3) and then to the original position of "attention" (Fig. 1).

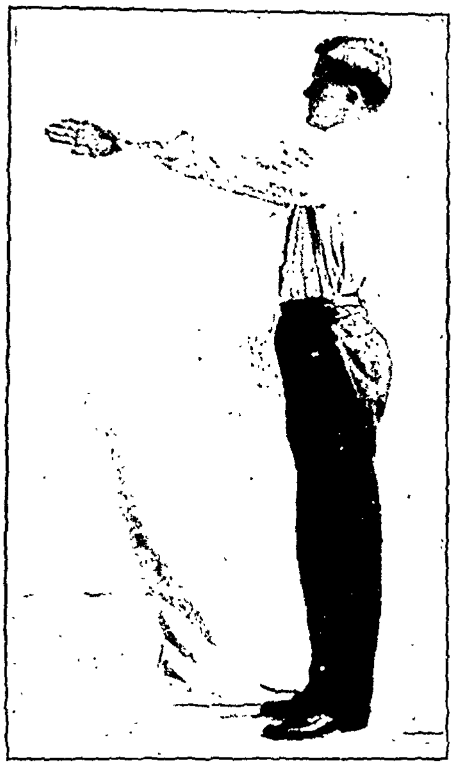

Fig. 11 (sixth exercise.)—Arms as in swimming.

The sixth breathing or respiratory exercise (F), which may also be called a dry swim, requires more strength and *endurance*. It should not be undertaken until the others have been practiced regularly several times a day for a few weeks, and until an evident improvement in breathing and general well-being has been observed. Take the usual position of military "attention" and then stretch the arms out as if in the act of swimming (Fig. 11), the backs of the hands touching each other. During the inspiration move the arms outward (Fig. 12) until they finally meet behind the back (Fig. 13). Remain in this position for the usual four seconds, counting by moving the hands while retaining the air, and on the fifth exhale, bringing the arms forward again (Fig. 14), ready to start for another swim (Fig. 11); or if this is the end of the dry swim, the arms return to the original position of "attention" (Fig. 1).

This somewhat difficult exercise can be facilitated and made more effective by rising on the toes during the act of inhalation (Fig. 12) and descending during the act of exhalation.

It will be seen that with the aid of these six respiratory exercises every muscle of the body is put into play. The face alone is at rest and can serve as an indicator that the exercises are properly done, for it should be borne in mind that they must be taken without any undue tension of the muscular system, and tremor-like movements must be avoided.

The following general rule concerning breathing exercises should always be remembered: Commence with the easier exercises (A) and do not go on with the more difficult ones until the former are completely mastered. Take from four to six respiratory exercises at a time, one of each, or when outdoors simply the first exercise, from four to six times every half-hour or hour, or at least four to six times a day and on rising in the morning and on retiring at night. Continue this practice until deep breathing has become a natural habit. These exercises should always be taken in an atmosphere as fresh and as free from dust as possible. Never take these breathing exercises when tired, and never continue so long as to become overtired. I repeat once more the important injunction that the muscles of arm and forearm, or any of the other muscles coming into play during the respiratory exercises, should never be on a tension but rather relaxed, so as to avoid the expenditure of unnecessary muscular energy.

Besides the exercises described above there is one more that after having learned all the other movements the recovered tuberculous soldier or sailor can add as a means to develop his chest by taking in the greatest possible amount of pure, fresh air. To this end he should proceed as follows:

> Take the usual position of "attention" (Fig. 1), then inhale deeply, *rolling* the shoulders upward and backward, holding the air for four seconds (Fig. 2), and on the fifth second exhale all the air possible. Assume again the original position (Fig. 1); but before inhaling again, make a second expiratory effort while turning the arms outward (movement of supination) and pressing the inner side of the upper arm against the chest (Fig. 15), and thus, so to speak, squeezing out all the air there is left in the lungs. An emptiness in the lungs is created in this way and the patient involuntarily takes a very deep inhalation (Fig. 16), after that assuming the ordinary quiet position of "attention" (Fig. 1).

With the aid of all these exercises we bring about an increase in hematosis. From our physiologic studies we recall that during ordinary inhalation and exhalation the amount of tidal air inhaled is only 500 c.c. The volume that can be inhaled by the first exercise is 1,500 c.c., known as complemental air, and the volume that can be exhaled by this exercise—supplemental air—is about 1,300 c.c. When now the second expiratory effort is added, aided by the supination of the arms and pressure against the chest, 500 c.c. more of reserve or residual air can be expelled. It is evident that this last exercise tends to enhance the value of respiratory therapy.

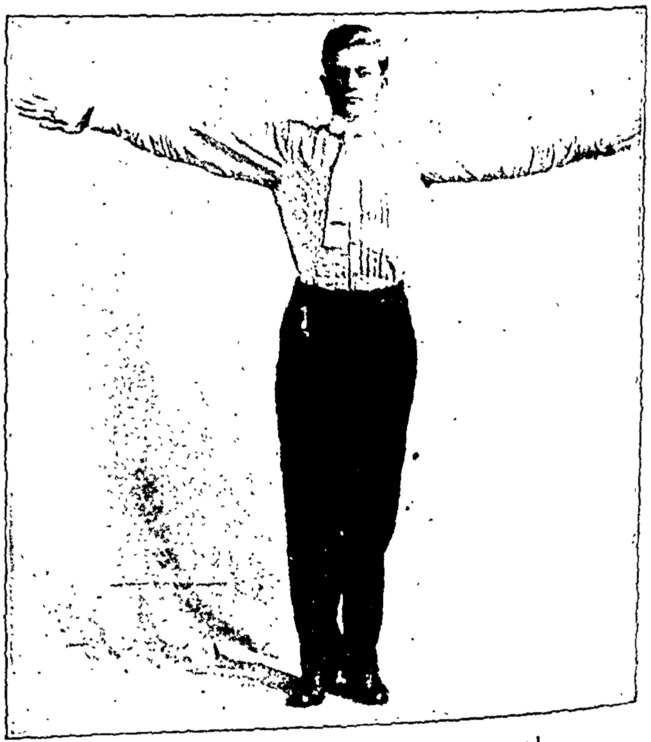

Fig. 12 (sixth exercise).—Arms moved outward.

CHOICE OF OCCUPATION

When all three of the measures just described—massotherapy, hydrotherapy and respiratory therapy—have been applied for a number of weeks and the patient is considered as safe against any relapse as the physician's skill and his own personal training and care can make him, there remains the necessity of selecting an occupation and environments for him that will tend to increase his chance of remaining well. This is a problem in itself, and all I can say here is that in a general way the more the individuals who have passed through *postsanatorium* treatment can be occupied outdoors, the less danger will there be of any renewal of the disease. At the same time we must bear in mind that there will be many who are neither temperamentally disposed nor physically fit to do agricultural or horticultural work, to raise chickens, drive trucks, become chauffeurs or outdoor salesmen, or be ticket choppers on elevated railroads. For those who have had the necessary training and are willing to occupy such or similar positions, which will assure outdoor life and at the same time enable them to make a comfortable living, nothing better could be selected. But there will be many men who, prior to entering the Army, had been successful in pursuing trades or professions which demanded indoor life, for which they had been prepared by years of training and study and in which they made a very comfortable living. Such would wish, if at all possible, to return to their former field of labor, and I am inclined to believe this can be done safely in many instances, provided the indoor office or workshop is sanitarily constructed and well ventilated, and that the individual lives the most hygienic life possible at home. It is especially important for him to sleep in a well ventilated room. The windows should be wide open, and whenever it is possible, he should sleep outdoors on the porch, in a tent placed on the roof, in the garden or yard. For those living in city apartments or tenement houses, I would suggest the installation of the indoor window-tent.

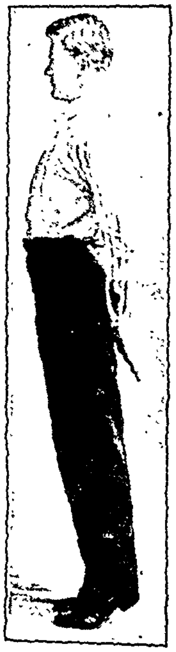
Fig. 13 (sixth exercise).—Arms meeting behind the back.

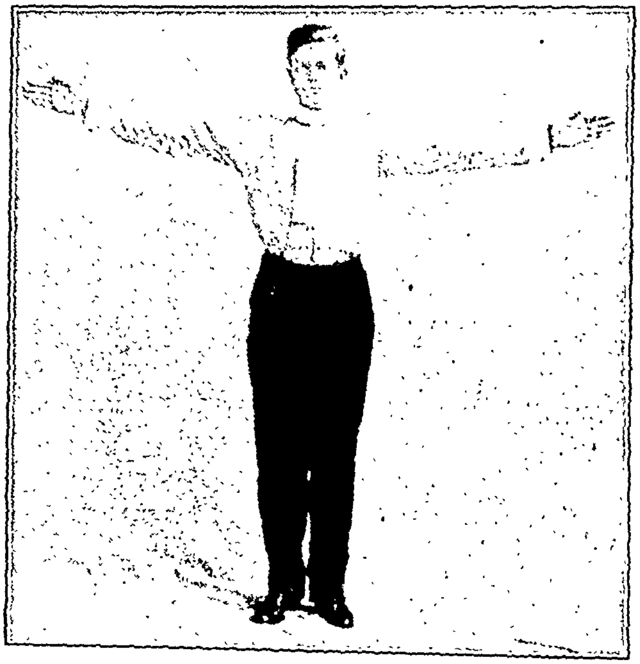
Fig. 14 (sixth exercise).—Arms again forward.

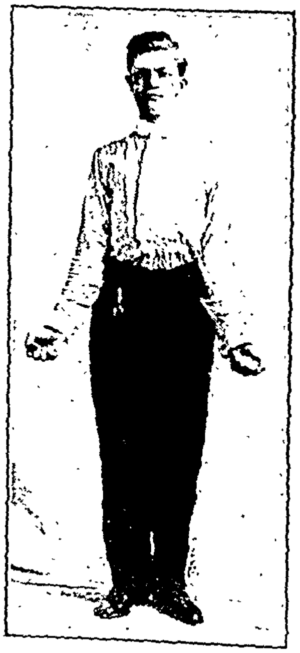
Fig. 15 (additional exercise). —Expiratory effort, arms outward.

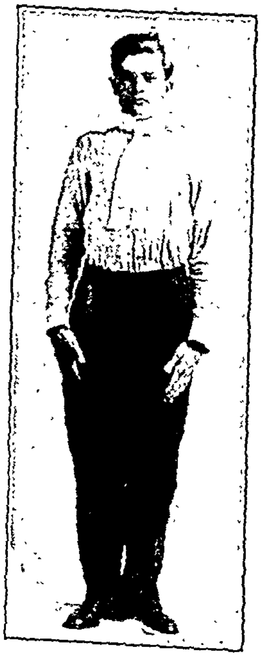
Fig. 16 (additional exercise). —Inhalation.

A draftsman, bookkeeper, clerk, tailor or shoemaker will rarely make a good farmer; but if the precautions just mentioned are taken, these men will do better and be happier when they can return to their former occupations. Of course there will be exceptions, and if the soldier's occupation in civil life was one in which he had been exposed to the inhalation of a great deal of dust or irritating gases, or to the extremes of cold and heat, night work or unusual physical strain, it will be wiser to choose another way for him to earn a living. Lastly, all soldiers and sailors discharged as arrested cases, whether or not they have had postsanatorium treatment, should be impressed with the necessity of having the chest examined at least every three months for the first year or two, and later on semiannually, so as to guard against any insidious recurrence of the trouble. Any intercurrent indisposition or actual disease of whatever kind should be considered important enough to have medical advice sought immediately. The recovered tuberculous soldier or sailor should be particularly careful in times of influenza and pneumonia epidemics, such as we are undergoing at present. He should avoid overcrowded assemblies, keep his bowels in good condition, and above all guard against overfatigue. Let him abide by the simple rule never to continue to work physically or mentally when already tired from manual or brain labor and never to work to the extent of getting overtired (acutely fatigued). It is my conviction that the fatigue poisons are as much responsible for the prevalence of infectious respiratory diseases as careless sneezing and coughing. Whether the periodic examination of the discharged one-time tuberculous soldier shall be done by the surgeon of the nearest military post, by a civilian practitioner, by a physician especially qualified and appointed by the government, or by the medical staff attached to the various tuberculosis institutions or under the direction of the National Tuberculosis Association, is a matter which should be worked out carefully by the respective authorities.

I am convinced that by carrying out systematically the methods I have described, to prevent relapses in arrested cases of tuberculosis, and by the subsequent periodic reexamination of the one time tuberculous soldier or sailor, not only will many valuable lives be saved, so greatly needed in this period of reconstruction, but individuals and families will be spared a great deal of suffering, and thousands of dollars of pension money will be saved to our government.

16 West Ninety-Fifth Street.

MASTOIDECTOMIES UNDER LOCAL ANESTHESIA

A BRIEF REPORT ON NINE MASTOIDECTOMIES (ONE DOUBLE), UNDER LOCAL ANESTHESIA AT THE BASE HOSPITAL, CAMP UPTON, N. Y.

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During the measles and pneumonia epidemic of the winter of 1917-1918, it was found necessary to operate in several cases in which acute mastoiditis complicated the pneumonia. In the absence of an expert in nitrous oxid and oxygen anesthesia, and part of the time of one in nitrous oxid anesthesia, it was deemed expedient to perform these operations under a local anesthetic. There was also one case from the recent influenza epidemic in which the operation was started under nitrous oxid-ether anesthesia; unpleasant symptoms arose when the anesthetics were switched, and it was decided to give the patient local anesthesia.

The method of administration was as follows: The patient was first given one-fourth grain of morphin subcutaneously, and in half an hour a 0.5 per cent. solution of cocain or procain, when the latter became available, was injected into the skin along the line of incision. The injection was then carried into the deeper layers and finally under the periosteum over the entire area of the mastoid. The insertion of the sternomastoid muscle and the posterior canal wall were injected at the last. About 15 c.c. of a 0.5 per cent. solution were used, in each case, although as high as 30 c.c. of a procain solution were used in one case—a double mastoiditis—and as low as 6 c.c. of a 0.5 per cent. solution of cocain were used in another case.

After waiting for from five to ten minutes, the operation was started and carried on in the usual manner. The patient usually complained somewhat of the pounding necessary to remove the cortex, but all admitted afterward that there was little actual pain.

In only one case did I find it necessary to resort to general anesthesia. In this case, that of a Russian who was very nervous and apprehensive from the start, we finished under chloroform.

One case in which I did a double mastoidectomy at the same time deserves special mention, as the patient was so ill at the time that it was not deemed advisable to give any type of general anesthetic.

The most remarkable thing about these cases, in my opinion, was the almost total absence of any shock following the operation. This indicates more conclusively than the statements made by the patients that there was very little pain or none at all. This was also observed by Major Harlow Brooks, then chief of the medical service.

In this series of cases the incidence of dry middle ears was 100 per cent., and there was no mortality. A patient with double mastoiditis, the most seriously ill of all, is now recovered and ready for discharge. He has been in the general surgical service for a recurrent empyema and multiple abscesses. Although ten days after the operation for mastoiditis a blood culture revealed *Streptococcus hemolyticus*, it was decided that the blood stream infection probably came from the chest condition, rather than from an infected sinus thrombosis, as neither sinus was exposed at the time of operation, and the overlying bone was found healthy.

REPORT OF CASES

Case 1.—D. J., a colored man, aged 21, farmer, admitted to my service, Jan. 3, 1918, for epistaxis, had had repeated nosebleeds for several years, and had suffered from swelling of the feet, legs and abdomen for two years. Urinalysis revealed albumin, + + +, and granular, waxy and epithelial casts. The specific gravity of the urine was 1.007. An additional diagnosis of chronic parenchymatous nephritis, with cardiac hypertrophy, was made.

January 6, the patient developed acute, bilateral, purulent otitis media.

January 7, 50 c.c. of horse serum were given to control a nasal hemorrhage. The nose had been packed repeatedly. The right ear cleared up after free paracentesis. The left ear continued to discharge.

February 14, there was a slight swelling over the left tip.

February 15, a simple mastoidectomy with the usual incision was performed. The sinus and dura were exposed. The entire tip was removed. An iodoform wick was inserted into the neck in addition to the regular mastoid packing. No pus was found in the neck. One-fourth grain of morphin, and 10 c.c. of a 0.25 per cent. cocain solution were used.

April 29, the patient was discharged from service. The ear was dry and the wound healed.

Case 2.—S. V., white man, aged 22, admitted to the hospital, Jan. 20, 1918, for measles and bronchitis, later developed pneumonia.

June 26, he complained of ear ache.

June 27, the left drum ruptured. I saw the patient after the rupture. He had considerable bronchial irritation, and it was thought unwise to give ether. The urine showed a trace of albumin. The specific gravity was 1.025. Culture revealed *Staphylococcus aureus.*

July 1, A simple mastoidectomy was performed. Fifteen c.c. of a 0.5 per cent. solution were used.

August 17, the patient was discharged, with the wound healed and the ear dry.

Case 3.—R. J., white man, aged 23, farmer, admitted to the hospital, April 27, 1918, for measles, developed bilateral bronchopneumonia, April 30; mumps on the left side, May 4; pharyngitis and acute follicular tonsillitis, May 5. May 6 he showed signs of acute arthritis in all joints. May 7 there were signs of pericarditis with endocarditis. May 11 he developed acute purulent otitis media on the left side, for which free paracentesis was employed, and May 12 on the right, with the same treatment. There were positive signs of mastoiditis on the left side, May 24, and on the right side, May 26. Pus from the ear showed *Staphylococcus aureus,* May 25.

The urine was negative. Blood culture, June 10, revealed *Streptococcus hemolyticus.*

May 31, a simple double mastoidectomy was performed. One-half grain of morphin and 30 c.c. of 0.5 per cent. procain were used.

June 29, an abscess developed on the left scapular region of the back; also somewhat later on the legs. There was empyema on the left side. A specimen of pus from these showed streptococci.

August 15, the wound was healed and the ears were dry.

November 12, the patient still had abscesses on the body.

November 20, the patient was ready for discharge from the hospital, cured.

Case 4.—B. A., white man, aged 25, admitted to the hospital with measles, developed pneumonia and later an acute infection of the left ear. Paracentesis was done. The pus from the ear showed *Streptococcus hemolyticus*.

April 26, a simple mastoidectomy was performed. One-fourth grain of morphin and 6 c.c. of 0.5 per cent. cocain solution were used. The wound was left open, the better to drain what was diagnosed as the beginning of a temporal abscess. In this case also an improvised drainage tube was used in connection with neutral solution of chlorinated soda. The result of this was negative so far as any difference could be made out. Later the edges were freshened and the wound was sutured. July 18, mumps developed.

August 14, the patient was discharged from the hospital. The wound was healed and the ear dry.

Case 5.—S. W., white man, aged 25, farmer, admitted to the hospital with measles, several days later developed bronchopneumonia. He had acute otitis media on the right side. Paracentesis was done with free drainage.

May 6, a simple mastoidectomy was performed. One-fourth grain of morphin and 15 c.c. of 0.5 per cent. cocain solution were used.

June 26, there was a second attack of bronchopneumonia, from which the patient died two weeks later. At the time of his transfer to the medical service, his ear was dry but the wound was not entirely healed.

Case 6.—T. S., white man, aged 25, admitted to the hospital with measles, later developed bronchopneumonia. Paracentesis was done for acute, purulent, right otitis media.

June 5, a simple right mastoidectomy was performed. One-fourth grain of morphin and 30 c.c. of 0.5 per cent. procain solution were used.

July 16, the patient was discharged from the hospital. The wound was healed and the ears were dry.

Case 7.—D. J., white man, aged 27, admitted with measles, later developed bronchopneumonia. Paracentesis was done.

June 4, a simple right mastoidectomy was performed. Procain solution, 0.5 per cent., and chloroform, 90 gm., were used. The patient was too nervous for local anesthesia.

July 10, he was discharged from the hospital with the wound healed and the ear dry.

Case 8.—H. W., white man, aged 22, farmer, admitted to the hospital, Oct. 18, 1918, with influenza and bilateral bronchopneumonia, had pain in the left ear, November 1, and some mastoid tip tenderness, with free discharge, November 4.

November 19, a diagnosis of acute left mastoiditis, with Bezold's abscess, was made. The patient was immediately transferred to the ear service.

November 20, a simple left mastoidectomy was performed. The tip was necrosed. The neck was drained. Pus was found in the soft tissues, just *outside* the tip. One-half grain of morphin and 8 c.c. of 0.5 per cent. procain solution were used. Pus from the tissues showed *Staphylococcus aureus.* The patient felt little if any pain during the operation and kept up a conversation with the nurse the whole time. There was absolutely *no shock* following the operation. The patient was up and around the ward the next day.

November 27, the middle ear was dry. The wound healed by first intention.

CAMPTOCORMIA (BENT BACK)

GEORGE W. HALL, M.D.
CHICAGO

The term "camptocormia" was originally used by Souques,[1] who presented a case before the Société de neurologie in Paris in February, 1915, as applied to the forward flexion of the body with or without lateral inclination. Hurst[2] has reported similar cases under the name "bent back." The particulars of sixteen cases of camptocormia have been presented by Rosanoff-Saloff,[3] from whose article some of the accompanying illustrations are taken. It is stated that the most careful examination of these patients has revealed no organic lesions. The author divides the patients into two classes, namely, those who had been wounded, and second, those showing no evidence of wounds. The first class included only two of the sixteen cases,

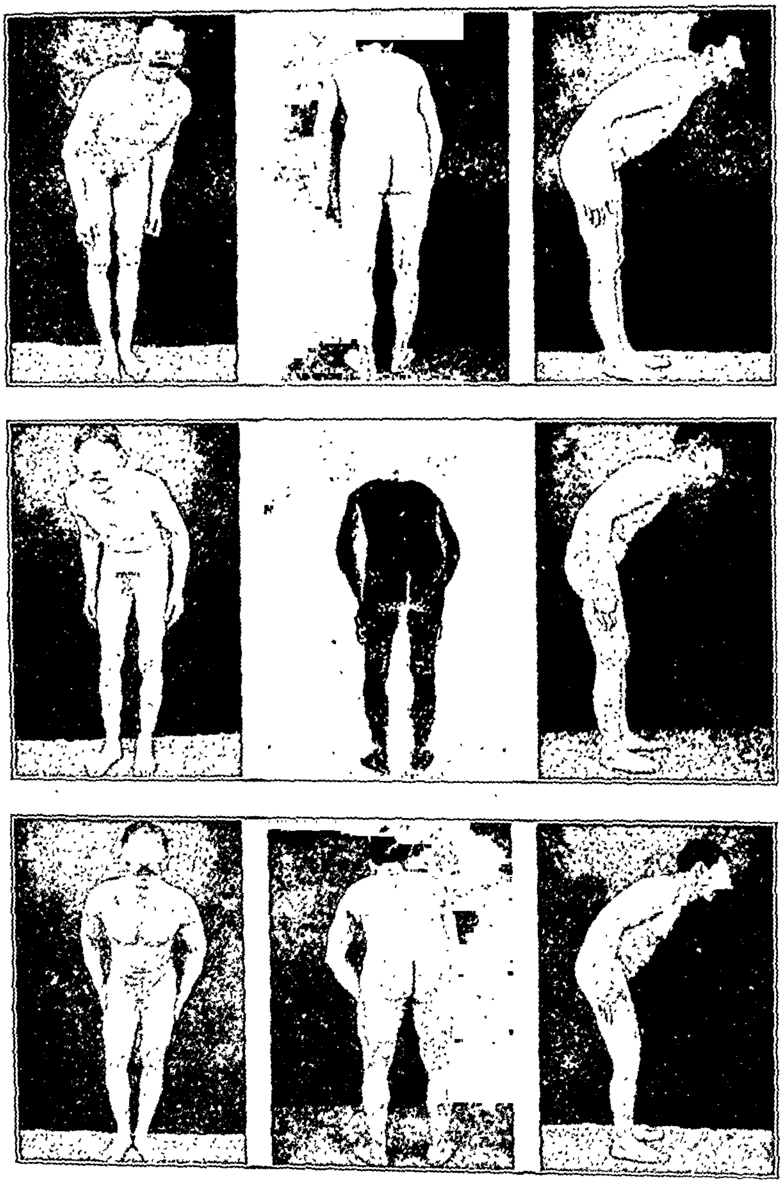

Fig. 1.—Several camptocormic soldiers examined and followed by Rosanoff-Saloff for several months at the hospice Paul Brousse (*de Villejuif*) in the service of Souques. All three present pure camptocormia.

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1. Souques, A.: Rev. neurol. **23:** 757, 1916; **24:** 142, 1917.
2. Hurst, A. F.: Brit. M. J. **2:** 621 (Dec. 7) 1918.
3. Rosanoff-Saloff: Considérations générales sur la camptocormie, Nouv. iconog. de la Salpêtrière **28:** 28, 1916-1917.

and the injury was distant from the part of the body bent. In the second class the men had been the victims of shell explosion and had been thrown to the ground by the force of the explosion and suffered some dorsolumbar traumatism. In all the cases lumbar pain was the important symptom. This gradually subsided after many days in bed, and on getting up the patients found they could not stand erect even though all pain had disappeared. Hurst states that the posture adopted to relieve the pain is regarded by the patient to be directly due to the injury as well as the pain.

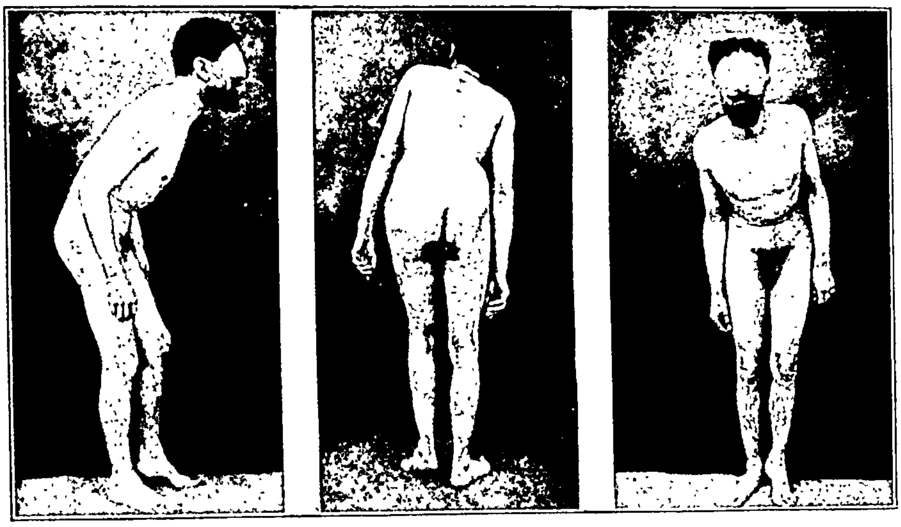

Fig. 2.—Camptocormia combined with lateral inclination.

REPORT OF CASE

The subjoined case conforms to the class which these authors have described:

J. S., aged 30, an enlisted soldier, Oct. 29, 1917, received an injury to the lower part of the abdomen on the left side and a bruise to the left arm, by a box weighing 115 pounds falling across his abdomen from the lowest step of a stairway. He was not seriously disabled at the time, but about twelve days later his body became somewhat flexed toward the left when sitting, standing or walking. The condition was looked on by the surgeons in charge as purely functional in character, and on Nov. 22, 1917, it was decided to operate on a varicocele, hoping to improve the former ailment. Immediately following this operation the patient's symptoms became aggravated in that he complained of increased pain and a severe "drawing" sensation of the left testicle on his attempting to asume an erect position of the body, and he was of the opinion that both testicles had become atrophied as the result of the operation. The trunk at the same time became considerably more bent toward the left. He was given a furlough, and his wife gave out the report that he had become impotent. This report caused expressions of sympathy among female organizations, which developed an active interest in the cause and gave the case rather widespread publicity.

In the meantime the patient's body became still more flexed toward the left. In June, 1918, Dr. Peter Bassoe and I were requested to examine the patient and render a report to the government, as we were serving in the capacity of contract surgeons at the time. Our examination revealed no organic changes in the central nervous system. Roentgenographic reports were negative. The patient showed diminished tactile and pain sense on the left side of the body. There was no hemianopsia, and the deep reflexes were but slightly increased. The Babinski sign was absent. At the time of our examination, the patient's body was greatly flexed toward the left while he was sitting or standing, and when he walked his left hand would rest on his left leg near the knee. He complained of severe "drawing" sensations in the testicles, extending toward the lumbar region on the left side. The diagnosis of a purely functional disturbance was made, and it was recommended that he be sent as far away from home as possible and be placed in a neuropsychiatric hospital.

PATHOGENESIS

In seeking the pathogenesis, Rosanoff-Saloff found that all of these sixteen patients were more or less neuropathic. Four of the patients gave a decided neuropathic family history, such as alcohol and epilepsy.

Sicard[4] examined the spinal fluid in fifteen cases within from ten to fifteen hours after the shock or injury and found the presence of hyperalbuminosis, with no other findings pointing to organic changes in the central nervous system. Souques likewise found hyperalbuminosis in three cases.

DIAGNOSIS AND TREATMENT

This condition resembles no disease except spondylitis deformans. While in the majority of cases uncomplicated kyphosis is present, Hurst has seen lordosis, lateral curvature and combined lateral curvature and kyphosis. He reports several cases in this connection.

Hurst states that unfortunately the medical officer too often makes the mistake of prescribing a treatment which causes the patient to believe that he is the victim of a very serious ailment. Hurst believes it is a purely functional disease and that psychotherapy is the treatment, electricity being used as only one of the means of suggestion. The application of a plaster jacket after straightening the spine under anesthesia will do no good and may do harm by more firmly fixing the idea in the patient's mind. He believes that hypnotism may be useful but that simpler methods, such as persuasion and reeducation, are better. The patient should be told that it is a bad habit, and he recommends strict discipline in effecting a cure. An illustration of his method of treatment is reproduced in Figure 5, showing how the patient is straightened out on the board in a horizontal position with his feet firmly fixed against the footboard placed at right angles. He is then gradually raised to the erect position, and in that way the author impresses the patient that his

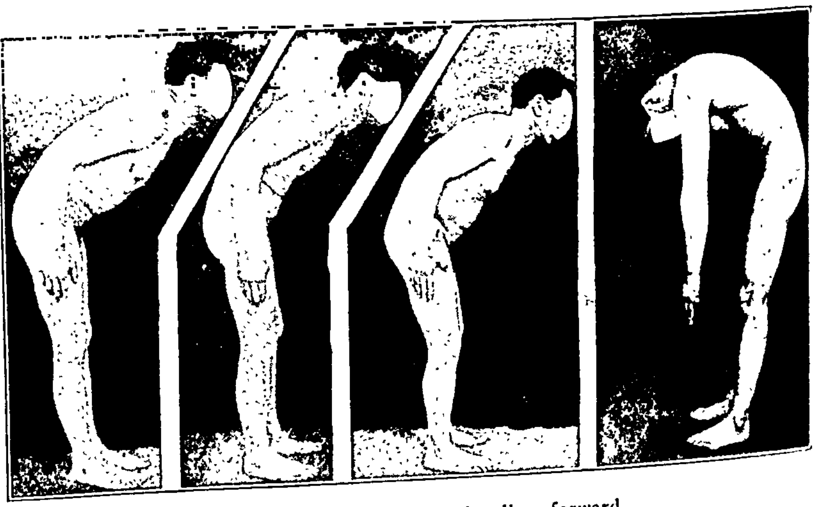

Fig. 3.—Normal man bending forward.

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[4] Sicard, J. A.: Bull. et mém. Soc. méd. d. hôp. de Paris 30:5[illegible] 1915,

body can be kept in an erect position and thus effects a cure.

Souques says that pure camptocormia is easily cured by persuasive electrotherapy. In a normal person, according to Rosanoff-Saloff, a long continued muscular immobility tends to produce the fixed attitude, but the patient's will power readily corrects the trouble; whereas, in a neuropath, the position is accepted by a sort of inertia or autosuggestion, and he adapts himself to it. Consequently, the prognosis in such cases is not good.

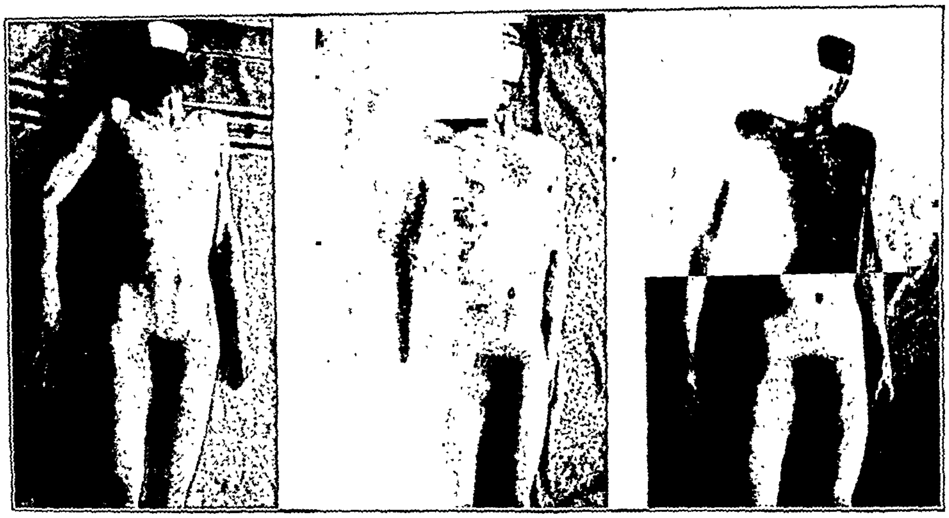

Fig. 4.—Among some subjects, the effort of straightening produces a classic trembling of the lower limbs which persists for from fifteen to twenty minutes. On the other hand, on a horizontal surface, straightening is complete and spontaneous in the case of most persons who are ill.

Rosanoff-Saloff further states that if the flexed position is corrected, the patient is prone to fall back into the former condition on the slightest provocation, and that hospitalization confirms him in his mental attitude.

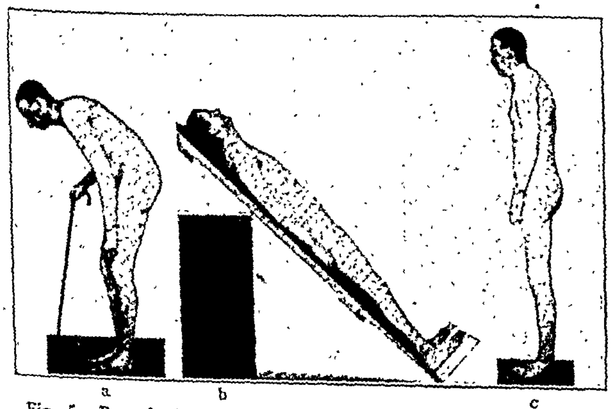

Fig. 5.—Bent back of five months' duration: *a*, before treatment; *b*, under treatment with "back-board"; *c*, after treatment.

These patients should be treated in a neuropsychiatric hospital and under the strictest discipline.

104 South Michigan Avenue.

Changing His Brand for a New Start.—Sir James Crichton-Browne relates the story of the provost of a Scottish town who had presided at a teetotal meeting. The provost wound up the meeting by a few remarks in which he said: "I confess I am not a total abstainer; I take a little whisky and water daily, but I may say that after the speeches I have heard this evening, had I to begin life again I would start on milk."

ANTALGIC SPINAL DISTORTION

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By antalgic spinal distortion I mean that peculiar condition characterized by an unnatural direction of the back, without any marked organic change in its structures, and adopted originally in order to relieve pain.

Some physicians serving in the war have observed among sick and wounded soldiers and sailors certain patients sitting, standing or walking in a stooping attitude, with round shoulders and back, or in an attitude wherein the back has assumed abnormal direction varying from moderate asymmetry to extreme distortion. Attention has for some time been directed to this condition, and an extensive literature on the subject has grown in France; but its true nature has rarely been recognized.

French writers have given this condition many denominations, such as plicature vertébrale, camptocornie (Souques and Rosanoff-Saloff[1]), spondylose antalgique (Sicard[2]), and campto-rachis (Laignel-Lavastine and Courbon[3]).

So far as my reading has extended, I find no mention of it in the medical literature of this country; and in that of England I find only one paper, under the title of "The Bent Back of Soldiers."[4]

Although this condition has of late been observed largely in men in the service, it would be incorrect to limit it to them, for many surgeons have undoubtedly seen patients in civil life who, after an abdominal operation, say an appendectomy, or after an attack of lumbago or an accident, developed a stooping attitude, bending forward with rounded shoulders and back, and walking slowly and trembling.

ETIOLOGY

The affection has been encountered especially in people who have a predisposition to the varied and ill-defined morbid conditions which may be provoked in most of the systems, and which are included under the name of hysteria and neurasthenia. At present it is difficult to say in what proportion it affects men and women in civil life. Military or naval service plays a great part as a provoking agent, where men are subjected to prolonged watching, physical overwork and emotions, and are disposed to malinger.

The main factor in developing the condition is pain, which may be due to a pathologic process or may be psychic. Its location need not be limited to the back, or to any particular organ or structure, for it may be

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1. Souques and Rosanoff-Saloff: Rev. neurol. **22**: 937, 1915.
2. Sicard: Bull. et mém. Soc. méd. d. Hôp. de Paris **39**: 582, 1915.
3. Laignel-Lavastine and Courbon: Rev. gén. de path. de guerre, p. 1, 1918.
4. Hurst, A. F.: Brit. M. J. **2**: 621 (Dec. 7) 1918.

in the abdomen, thorax or other regions. Most commonly, however, it follows backache, and the causes of backache are too many and too vaguely enumerable to be mentioned here. Among the various causes of pain leading to such an affection I may mention an accident, a blow, a wound, or a fall on or about the back or abdomen, a diseased organ, as an appendicitis, the after-effect of an operation or a lumbar puncture, an attack of rheumatism or lumbago, and exposure to cold and damp.

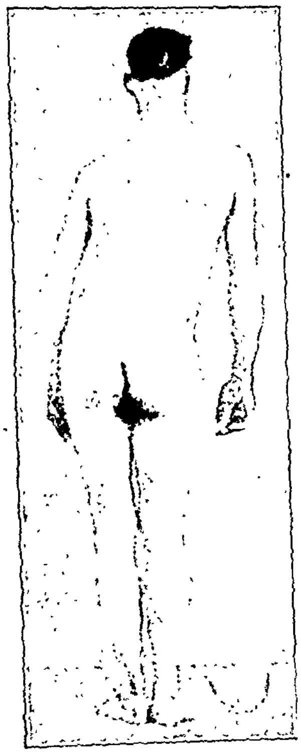

Fig. 1.—Patient before treatment.

PATHOLOGIC ANATOMY

The unnatural direction of the back is due to no pathologic changes in its structures, but is adopted in order to relieve the pain. This pain in some cases may become continuous, and is due chiefly to the constant stretching of the ligaments and small muscles of the spine. The diversity of the conditions that have caused the pain may lead us to confusion. A bruising, following an injury, may cause fibrositis, myositis or both—a pathologic process. Rheumatism or lumbago also produces pathologic changes in the fibrous and muscular tissues. In patients with a history of such conditions and a faulty position of the spine, bruising soon disappears. The rheumatism or lumbago eventually improves. The pain is either completely relieved or is less severe than it was at the onset, and yet the posture adopted remains. The more or less permanent organic element, if any, left from the effect of the bruise or the rheumatism is not in itself all sufficient to justify the patient in assuming such a posture. A psychic element is entirely or chiefly responsible for it. Roentgenoscopy in these cases reveals no organic lesion of the spine.

DIAGNOSIS

The distortion arises from the pain and not the pain from the distortion. The appearance of the patient, and the absence of true organic lesion, after roentgen investigation, are distinctive signs and symptoms to make the diagnosis an easy matter. Cases of various kinds of deformities, as kyphosis, lordosis and scoliosis, mild or severe in degree, uncomplicated or combined, have been seen which owe their origin to this affection. In some cases antalgic kyphosis may be difficult to differentiate from spondylitis deformans. A careful observation of the progress of the disease can settle the diagnosis. Further, in spondylitis deformans, a change of position does not affect the spinal curve and its rigidity. In antalgic kyphosis, lying with the back on the table invariably permits of reposition of the spinal curve partially or totally.

TREATMENT

We have seen that although the etiology of this condition is variable, its pathology is always psychic, and has generally, if not entirely, no organic element. We are therefore justified in considering the phenomena of this condition the result of autosuggestion, and they can be reproduced by the will. In ordering a treatment, we must keep in mind that these phenomena will disappear in the same way that they are reproduced, under the exclusive influence of persuasion. Psychotherapy should replace the various and elaborate methods of treatment, and remove the impression from the patient's mind that he is suffering from some serious disease. The patient believes that his abnormal posture is the cause of his pain, instead of the opposite, and the medical man, by prescribing treatment with drugs, massage, counterirritants, electricity, the plaster-of-Paris jacket, etc., reinforces the autosuggestion of the patient by heterosuggestion. From the failure of such treatment, the patient is led to believe that his condition is incurable.

The subjoined case, under my care recently, shows that some cases of abnormal curvature of the spine, which have proved very resistant to various forms of treatment, and consequently considered incurable, are really examples of antalgic spinal distortion.

REPORT OF CASE

Lateral curvature of the spine, of three months' duration, cured by psychotherapy in one week.

Seaman A. R. H. of New Hampshire, aged 27, with nearly two years' service in the U. S. Navy, was admitted to the Elizabeth City Hospital suffering from lateral curvature of the spine.

At the time of his enlistment, early in 1917, his height was 71 inches, weight 150 pounds, circumference of chest 34 inches, expansion 4 inches, vision and hearing normal. About Oct. 1, 1918, while he was on night duty on board a submarine chaser at Baltimore Nets, his back began to pain him. The pain started at the end of the spine and extended upward to the neck. At the end of the watch, his body was drawn over to one side, and he was unable to hold himself straight. The pain and the faulty position continued. He remained on board ship until October 25, when he was sent to the U. S. Naval Hospital, Norfolk, Va. While there he was treated with hydrotherapy, massage and a plaster-of-Paris jacket. Several roentgen examinations were made, and detected no organic spinal lesion.

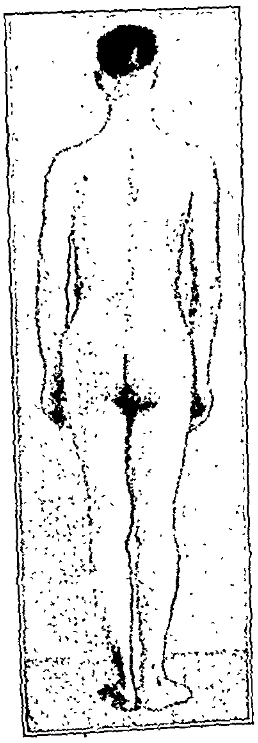

Fig. 2.—Patient after treatment.

December 28, he was transferred to my care, at the Elizabeth City Hospital, for further treatment. On admission, the patient stated that his back ached continuously. There was a lateral curvature of the spine to the left in the lumbar region and to the right in the dorsal region, with corresponding prominence of the left hip and right shoulder. The faulty position could be corrected by manipulation while standing.

An explanation of the condition was given the patient. He was told that there was nothing serious the matter with his spine, and that the backache would soon disappear if he would relax his muscles and stand straight. First he was made to stand erect with his back to the wall, and then to walk forward in the same position. Similar simple methods of persuasion and reeducation continued for one week, and the patient recovered completely.

Health and National Efficiency.—Care for the health of the people is the secret of national efficiency. It is the secret of national recuperation.—Lloyd George, Manchester Speech.

THE VALUE OF THE WASSERMANN REACTION IN PREGNANCY

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AND
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CHICAGO

The report made by Falls and Moore[1] of a positive Wassermann test in 11.3 per cent. of 160 cases of pregnancy raised a doubt in the mind of one of us (E. L. C.) as to the correctness of these figures, at least in private practice. If they are correct, a very large number of syphilitics in private obstetric practice are escaping detection altogether. In support of this doubt, the figures obtained in other series showed a considerable variation. Commiskey[2] reported 8 per cent. of positive results and Menten[3] 13.45 per cent. positive, while Adair[4] obtained only 6.5 per cent. positive.

We feel justified in suspecting that the high proportion of syphilitics in these series and the variation in results were due to the presence in them of charity patients, and especially negroes. We therefore decided to test the question by a parallel series of cases, one among private patients and another among those entering the Chicago Lying-In Hospital for free care.

The cases in the first series were consecutive, every patient in the practice of one of us (E. L. C.) being given a Wassermann test at her first visit. Some appeared early in pregnancy, while others were not seen until the time of delivery. A few were consultation cases.

In 107 cases, four gave distinctly positive reactions. Two with doubtful reactions have been excluded from consideration, as every other indication of syphilis was lacking, and they have healthy children over a year old. There were, therefore, 3.6 per cent. positive reactions; two of the four gave a history pointing to syphilis, while the other two gave no history at all suggestive.

Case 1.—Mrs. J. contracted syphilis from her first husband, her first pregnancy resulting in a miscarriage at the sixth month. The second pregnancy resulted in a stillbirth at term, and the third (by the second husband) in an apparently healthy child. Previous to and during this pregnancy she received intensive treatment. The child is apparently healthy at the age of 2. She has recently been delivered of a child which shows at the age of 4 months signs of syphilis. Treatment was neglected until near the end of pregnancy.

Case 2.—Mrs. P. gave a history suggestive of syphilis. Her first pregnancy resulted in an abortion, the second in a small child which lived only a few hours. The third terminated in craniotomy because of a large child in the presence of a contracted pelvis. At the third month of the fourth pregnancy, the diagnosis of syphilis was made clinically and serologically, active treatment was instituted, and a live child weighing 9½ pounds delivered by cesarean section after a labor test of twenty hours. The child is apparently healthy without antisyphilitic treatment.

Case 3.—Mrs. C., primipara, gave a history negative for syphilis. She refused treatment and was delivered elsewhere. No information has been obtainable as to the result of her pregnancy.

Case 4.—Mrs. B. was delivered of a full term macerated fetus in her first pregnancy. The second resulted in an abortion. She gave no history suggestive of syphilis.

In reviewing these cases one is struck by the large number in which there is a history of abortion or stillbirth. In all probability these are not syphilitic. Twenty-one of the 103 cases gave such a history, a percentage of 20.3 +. It certainly does not seem reasonable to ascribe any large proportion of these accidents to a syphilis which has since become extinct, or is beyond the reach of clinical or serologic recognition. DeLee's observation that other infections than syphilis cause stillbirths has stimulated us (E. L. C.) to seek the cause of the accidents in focal infection.

Twenty-one cases, presented in the accompanying table, aside from the syphilitic, have a history of an abortion or stillbirth. This is a percentage of 19.6.

Our second series corresponds to that of Falls and Moore, except that there were no negro patients. It included 101 charity patients entering the Chicago Lying-In Hospital. Most of them were delivered in the hospital, but some left before delivery. Ten gave positive Wassermann reactions, a little less than 10 per cent. Of these two had active skin lesions and two gave a history pointing to syphilis. One gave a history of repeated miscarriages, and one had cardiovascular disease, from which a suspicion of syphilis might reasonably arise. The other four gave no history or sign of the disease, and would no doubt have escaped diagnosis except for the serum test. The fact that the percentage of syphilitics in the second series was so much higher than in the first corresponds with the higher proportion of syphilitics among charity patients. About a third of the women in this series acknowledged being unmarried, while 40 per cent. of those with positive serum tests were unmarried. Half of the syphilitic patients were in their first pregnancy.

ABORTIONS OR STILLBIRTHS IN TWENTY-THREE CASES ASIDE FROM THE SYPHILITIC

	Parity	Live Children	Abortions or Stillbirths	Remarks
N. S.	7	1	6	Last case a double placenta at 6 mos.
R. M.	5	1	4	Bad teeth
E. B.	2	1	1	Full [illegible]
C. E.	4	1	3	T[illegible]
A. L.	3	1	2	Sc[illegible] died; status
R.	3	1	2	One craniotomy; one miscarriage
K.	3	2	1	Seven months premature
M.	2	0	2	First eclampsia, second abortion
H.	3	0	3	All below 4 months
T.	2	1	1	
K.	9	2	7	
G.	3	2	1	Retained placenta first and second abortion
B.	1	0	1	4½ months; 10 abscessed teeth
C.	4	1	3	First criminal, second and third accidental
M.	2	1	1	Stillbirth
E.	3	2	1	First, three months
S.	3	1	2	
O.	3	2	1	Angular pregnancy
S.	2	0	2	
P.	4	1	3	First, O.K.; second, stillbirth; third and fourth, died in utero at six months; delivered at term
McE.	2	1	1	Vaginal infection
	70	22	48	

The technic of our tests corresponds with the original Wassermann technic except in generally accepted changes, such as the use of multiple alcoholic extracts as antigens, and the titration of complement and fixation at room temperature for half an hour and then in the water bath at 37 C. for half an hour. In addition, the complement was titrated for its fixation power in the syphilitic system, and the strength of reaction controlled by a titration of a mixture of glycerinized positive serums.[5]

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[1] Falls, F. H., and Moore, J. J.: The Value of the Wassermann Test in Pregnancy, J. A. M. A. 77:574 (Aug. 19) 1916.
[2] Commiskey, L. J. J.: Am. J. Obst. 73:676 (April) 1916.
[3] Menten, M. L.: Am. J. Obst. 78:514 (Oct.) 1918.
[4] Adair, F. L.: Am. Jour. Obst. 78:678 (Nov.) 1918.

We had no false positives in eclamptics, as reported by Falls and Moore, but had several weak positive or doubtful reactions in cases which we finally concluded were nonsyphilitic. These seem to be more common in the pregnant than in the nonpregnant, but did not run parallel with toxicity, for they were observed in a number of healthy women with negative urinary findings, while they were absent in others distressingly toxic. They occurred much oftener with the heart antigens than with the syphilitic liver antigens.

The phenomenon reported by Menten, who observed positive reactions before parturition change to negatime immediately after childbirth, has been observed by one of us (A. W. S.) in a woman whose positive reaction did not yield to treatment as intensive as was thought safe throughout pregnancy. Within a few days after delivery a frank negative was obtained, which again became positive in a few months in spite of treatment. The child is clinically and serologically negative at the age of 8 months.

The glycerinized positive control was checked in its work of protecting against too finely drawn tests by the use of 0.4 c.c. of serum, twice the maximum dose, as serum control. Anticomplementary action is very quickly shown by such a control, while, on the other hand, the danger of native amboceptor in such a quantity of serum was guarded against by testing each serum for amboceptor. The full dose of serum, 0.2 c.c., was combined with the full dose of blood suspension and one hemolytic titer of complement. If hemolysis resulted, the presence of at least 2.5 titers of native amboceptor was demonstrated, and no rabbit amboceptor was added to the tubes containing this serum. Since our serums have been inactivated for half an hour in the water-bath at 54 C., we have seen very few serums with this amount of native amboceptor.

In spite of the phenomenon of Menten, it is probable that the well known tendency toward latency of syphilis in women tends to produce a negative Wassermann reaction in a larger percentage of cases than in men, and we therefore feel certain that some syphilitics in both our groups escaped detection. Examination of the cord and placenta or of the dead infant will supplement the serum test in these cases. Accepting even our small percentage of positive results in the private cases for the general prevalence of syphilis among women, the estimate given by Pusey[6] would be swollen from 1,200,000 to 4,320,000 adult syphilitics in the United States. When the many women in the charity class and their high percentage of syphilitics are considered, an appalling figure is reached. The crying need for activity against this "third great plague," as it is called by Stokes, is today apparent to all. As an important stronghold of the enemy, we would emphasize the pregnant woman. If syphilis is diagnosed early, the lives of many children may be saved from destruction or deformity worse than death, and thousands of families every year preserved from the greatest torture of mind, as well as from bodily ills. Even though only 3 per cent. of the pregnant were found syphilitic, and only a third of these would escape detection by clinical means, the trouble and expense of the routine Wassermann tests in the pregnant are fully justified.

SUMMARY

1. Our first series of private cases of pregnancy gave only 3.6 per cent. of positive Wassermann reactions.
2. Our second series of charity cases gave nearly 10 per cent. of positive reactions.
3. More than one third of these positive cases were detectable only by the serum examination.
4. Routine Wassermann reactions in pregnancy are amply justified by these findings.
5. A surprisingly large number of apparently nonsyphilitic women give a history of frequent abortions.
6. The Wassermann reaction should be checked by searching for the spirochete and by postmortem examinations when possible.

122 South Michigan Avenue.

A NEW TREATMENT FOR THE MORPHIN HABIT

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DENVER

It is common knowledge that a person addicted to the use of morphin may gradually increase the dose of the drug without suffering toxic effects, so that in a few months he may take with impunity a dose that originally would have been fatal. In other words, he establishes an immunity to the drug; and it seems probable that the immunity is due to the presence of an antibody or antitoxin in the blood.

When later the morphin is withdrawn, the antibody remains in the blood unneutralized, and according to the theory that is generally accepted, it is this antibody that gives rise to the characteristic symptoms of nervousness, leg pains, sweating, nausea, vomiting, diarrhea, etc. These symptoms are relieved when morphin is administered, and the amount required to give relief is precisely the dose to which the morphinist has habituated himself. A less amount relieves the symptoms only in part, while an amount in excess of it gives again the toxic symptoms of morphin. Thus a morphinist can estimate pretty accurately an unknown dose that has been given to him by a physician; and the physician, by observing the alleviation of the patient's symptoms, can titrate in a sense the patient's antibody much as he titrates complement in vitro.

So physicians have come to believe that a definite antibody to morphin is formed in the blood, and that the unneutralized antibody is the cause of the withdrawal symptoms. Another explanation sometimes offered for the occurrence of the withdrawal symptoms is that morphin disturbs the normal secretory and excretory functions of the body, and by its prolonged use thus induces an autotoxemia. But it is by no means clear why this toxemia should suddenly fulminate when the morphin is withdrawn, and the lack of explanation on this point materially weakens this theory.

But whether there is present an antitoxin or an autotoxin, it is evident that some form of toxin is present, and the withdrawal symptoms of sweating, vomiting, and diarrhea would indicate that the body is endeavoring to eliminate it.

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[5] Stillians, A. W.: J. Cutan. Dis. **36:** 289 (May) 1918; Am. J. Syphilis **1:** 767 (Oct.) 1917.

[6] Pusey, W. A.: Syphilis as a Modern Problem, p. 104.

CUSTOMARY METHODS OF TREATMENT

The present treatment of chronic morphinism involves three principles, *namely,* catharsis, the rapid or gradual withdrawal of the drug, and the administration of belladonna or alkaloids derived from the belladonna group—the alkaloid most generally used being scopolamin. The purpose of catharsis is, of course, to effect an elimination of the toxins. The purpose of withdrawal of the drug is obvious. The purpose of the alkaloids seems to be to effect a stupor or intoxication and thus reduce the suffering caused by the withdrawal symptoms. Various other explanations are offered for the use of belladonna and the alkaloids, one being that the active principles of the belladonna group are physiologic antidotes capable of "unpoisoning" the patient. The explanation of "unpoisoning" seems a little fanciful.

With almost any form of treatment the patient suffers to some extent from the withdrawal symptoms of nervousness, restlessness, leg pains, nausea, vomiting, etc., and following the treatment there is a more or less protracted period of nervousness and insomnia. During the treatment, delirium may develop from the belladonna or scopolamin.

The Towns-Lambert treatment combines catharsis with the rapid reduction of morphin and the hourly administration of a mixture of belladonna, hyoscyamus and xanthoxylum.[1] Catharsis is effected with 5 grains of blue mass and five compound cathartic pills. When the bowels have moved freely, the patient is given two thirds or three fourths of his daily dose of morphin, and his initial dose of the belladonna mixture, which is given thereafter every hour through the day and night in increasing doses. Ten hours after the morphin has been given, the pills and blue mass are repeated, and when free catharsis has been effected, the patient is given one half of his former dose of morphin. In another ten hours the cathartics are again repeated, and after further free purging, the patient is given his morphin with the dose once more cut in half. This is the patient's last dose of morphin. Soon afterward there appears from the cathartics a characteristic green stool, and with its appearance the belladonna mixture is stopped and the patient is given castor oil to cleanse the intestinal tract. The treatment here sketched is modified to suit varying conditions.

The Sceleth treatment involves initial catharsis with the subsequent administration of a solution the chief ingredients of which are scopolamin and ethylmorphin hydrochlorid. The solution is tapered off toward the end of the treatment.

The Petty treatment involves catharsis, rapid reduction of morphin, and the administration of scopolamin.

The Sceleth and Petty treatments thus supplement catharsis and withdrawal by *narcosis.* The Towns-Lambert treatment supplements catharsis and withdrawal with a belladonna mixture that is given empirically and is supposed in some manner to relieve the craving for narcotic drugs. The treatment is presumed to relieve the craving for alcohol and tobacco as well as for morphin.

It is difficult to determine the value of the belladonna mixture of the Towns-Lambert treatment. Relative to this matter I can say that I have seen morphinists smoke constantly throughout the treatment when they have not expected to lose their appetite for tobacco, and I am convinced that none of them would voluntarily have given up morphin if they had expected to relinquish only their cigars. I am inclined to believe that suggestion is one of the secret ingredients of the belladonna mixture.

In thus criticizing the Towns-Lambert treatment, however, I do not mean to discredit it. The treatment possesses unmistakable merit, and I am sure that suggestion cannot eliminate toxins from a morphinist's blood stream. Possibly the toxins are neutralized to some extent by the belladonna mixture, and probably they are eliminated to a large extent by catharsis. Elimination would appear to be of special value for the reason that the withdrawal symptoms of sweating, vomiting and diarrhea represent an attempt at elimination by nature.

At any rate my faith has been largely in elimination, and the idea suggested itself to me that elimination could be greatly augmented by giving the patient intravenous infusions of physiologic sodium chlorid solution, for this solution would be eliminated by the kidneys and intestine, and should carry the toxins with it.

Another apparent advantage of the intravenous solution is that it would dilute the toxins of the blood stream. To illustrate this mathematically: A man weighing 140 pounds would have approximately 7 pints of blood, and an intravenous infusion of 2 pints of saline solution would dilute the toxins of the blood to approximately three fourths of their original concentration. From this dilution of the toxins one would expect to see an amelioration of the withdrawal symptoms. The dilution would, of course, be temporary, for additional toxins would pass to the blood stream from the body tissues, but these toxins would in turn be eliminated with the excess fluid.

AUTHOR'S METHOD OF TREATMENT

On these purely theoretical considerations I decided to attempt the treatment of chronic morphinism solely by elimination, supplementing a catharsis of the intestinal tract with a catharsis of the blood stream brought about by repeated intravenous infusions.[2] The patients were volunteers treated gratuitously at Mount Airy Sanatorium through the generosity of the superintendent, Dr. George E. Neuhaus.

The treatment of a case is typically as follows: The patient is put to bed and his morphin stopped entirely. He is put on a semisolid or a liquid diet, and is given cathartics as prescribed in the Towns-Lambert treatment. He thus receives three or four cathartic courses, consisting of 5 grains of blue mass with five compound cathartic pills, at intervals of approximately eighteen hours. Some hours after the last of these cathartic courses he is given castor oil. The patient receives from two to four intravenous infusions a day according to his condition. The standard infusion consists of 1,000 c.c. of 0.9 per cent. sodium chlorid in sterile freshly distilled water.

During the first few days of treatment the patient is given enough chloral, usually about 30 grains, at bedtime to insure a night's sleep. Hypnotics are an important element in the treatment, for the sleep they induce not only blots out large periods of discomfort, but

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[1] The mixture consists of:

	Gm. or C.c.	
Tincturae belladonnae (15 per cent.)	62	fl ℥ ij
Fluidextracti hyoscyami	ãã 31	fl ℥ i
Fluidextracti xanthoxyli		

[2] The infusions were given from quart medicine bottles hung in an inverted position. A two-hole rubber stopper carries a short glass tube as an outlet for the solution, and a long tube reaching to the bottom of the bottle serves as an air inlet.

also fortifies the patient mentally and physically for the ordeal through which he is passing.

The semisolid or the liquid diet is continued as long as the patient feels any nausea, and he is kept in bed during the cathartic period and until all acute discomfort from the withdrawal of the morphin has disappeared.

As previously stated, the morphin is stopped entirely, and if at any time the patient complains unduly of his withdrawal symptoms, he is given a saline infusion instead of a hypodermic injection of morphin.

There seem to be no contraindications to the saline infusions, and patients have suffered no ill effects from receiving three or four infusions daily for a period of a week or more. One patient received infusions in thirteen days amounting to 50 per cent. of her body weight, and her physical condition improved greatly during this period.

The infusions do not produce a marked increase of arterial tension. An infusion of 1,000 c.c. is followed by an increase in blood pressure equivalent to about 5 mm. of mercury. The increase is of course temporary.

The repeated infusions do not produce anemia. There is a slight decrease in the red cell count and percentage of hemoglobin owing to the increase of the fluid element of the blood, but there is no destruction of the blood cells. The absence of anemia is clearly evidenced by the patient's marked improvement in color.

The infusions are followed by a marked decrease in the viscosity of the blood. The decreased viscosity lessens capillary resistance, and thus reduces the normal heart load. This is advantageous in reducing the tendency to cardiac weakness so often seen with the withdrawal of morphin. It is also advantageous in permitting the administration of large doses of chloral without embarrassment to the myocardium. It was not found necessary to give any of the patients cardiac stimulants.

Six patients were treated by the foregoing method. Their average age was 34 years. Their average period of addiction was twelve years, and their average daily dose of morphin, 7 or 8 grains. Three of them were addicted to the occasional use of cocain, and three of them had positive Wassermann reactions. The average patient was fourteen days in the sanatorium, and he received infusions during the first seven days. The average amount of saline solution administered to each patient during this period was 15,600 c.c. The average patient experienced discomfort from the withdrawal symptoms at different intervals during the first two or three days, but none of them can be said to have been markedly uncomfortable at any time. Most of them experienced considerable relief from the intravenous infusions, and thus the periods of discomfort preceding the infusions would amount to only a small total. After the stage of acute discomfort there followed a period of nervousness and sleeplessness. This nervousness was not constant, but manifested itself at occasional intervals for several days. The sleepnessness was not protracted, and the average patient took hypnotics for only four nights.

During the restless convalescent period, two of the patients were given the Towns-Lambert treatment (without morphin) as an experiment. Both of the patients had been addicts for more than twenty years, and their nervousness persisted at the end of the second week, at which time the Towns-Lambert treatment was given. The nervousness diminished considerably following this second treatment. Their improvement would point to some specific potency in the Towns-Lambert belladonna mixture, though in reasoning from cause to effect one must consider also the probable efficacy of a second course of cathartics, and also the influence of suggestion. Suggestion may have been quite a factor with these patients, for they knew the Towns-Lambert treatment to be fully accredited and the infusion treatment to be merely experimental.

In addition to the six patients treated by infusions, another six were given the Towns-Lambert treatment simultaneously with the infusions. Before the Towns-Lambert treatment was begun, the patients were placed under observation for twenty-four hours, and during this period were given small doses of morphin as their condition required in order to determine the minimum twenty-four hour dose necessary to keep them comfortable. The rapid reduction in accordance with the Towns-Lambert treatment then followed with this amount as a basis.

The six patients in this series were milder cases than those treated only by infusions, and some of the subjects were private patients at Mount Airy Sanatorium. Their average age was 40; their average period of addiction was nine years; and their average daily dose of morphin was 3½ grains, this dose being one-half the amount in the first series. Four of the patients occasionally used cocain. Two of them had positive Wassermann reactions.

The first two patients received infusions only when they manifested discomfort under the Towns-Lambert treatment. The remaining four received infusions from the start. The average patient was given five infusions, and in the average case the infusions were not continued beyond the third or fourth day. The average patient was discharged on the seventh day.

With this combination of the Towns-Lambert treatment and the infusion treatment the patients suffered about the same discomfort from the withdraw symptoms as those treated by infusions alone, but they recovered more quickly from the subsequent period of nervousness. Some of them manifested a definite euphoria on the third or fourth day, and stated that they had never felt better in years. Thus it would seem that the infusion treatment combined with the Towns-Lambert treatment is better than the infusion treatment alone; but in order to determine the matter definitely it would be necessary to take two equivalent series of cases instead of two series of rather dissimilar cases such as I employed in my experiments.

I give here a brief summary of the individual cases of the two series:

SERIES I. PATIENTS TREATED BY INFUSIONS AND CATHARSIS

The patients in this series of cases were treated by infusions and catharsis, and their morphin was stopped entirely. When necessary they were given hypnotics during the first few days to combat insomnia. They were kept on semisolid or liquid diet while there was any tendency to nausea, and were kept in bed till all acute discomfort had subsided.

Case 1.—A woman, aged 27, had used morphin for eight years, and was taking 8 grains a day hypodermically when presenting herself for treatment. The Wassermann test was strongly positive. She received seventeen infusions (each of 1,000 c.c.) during eight days of treatment. The first four days she received 30 grains of chloral, or 15 grains of chloral with 15 grains of sodium bromid, at bedtime.

On the first day of treatment the patient was comfortable. On the second day she was restless during the afternoon and evening, and she vomited once or twice during the evening. On the third day she was restless and nauseated during the early morning, but she slept for several hours after receiving an infusion. She was restless again during the afternoon. After the third day she was allowed to be up and around. She felt a little nervous during the afternoons of the fourth and fifth days, but the nervousness was relieved by hot baths. After the fifth day she was free from nervousness, ate ravenously and slept well. She was discharged the twelfth day.

Case 2.—A man, aged 32, who had used morphin for eleven years and was taking 8 or 10 grains a day hypodermically, was given ten infusions over a period of five days. The first night he received 30 grains of chloral. The third night he received 15 grains. No hypnotics were administered the second night, or any night subsequent to the third. He had no trouble at any time with insomnia.

The patient was restless and nauseated during the evening of the first day, and vomited once or twice. He slept the greater part of the second day, and fell asleep while taking an infusion. He was comfortable on the third day, but on the fourth day felt nauseated after taking solid food. He was kept on a light diet for another couple of days, and had no further nausea or other discomfort. He was discharged on the thirteenth day.

Case 3.—A physician, aged 37, who had contracted the morphin habit at 24, and had undergone several cures and several relapses, and occasionally used cocain, took his last cure seven months before entering the sanatorium, but one month before had recommenced the use of cocain and morphin. When admitted for treatment he was using 15 or 20 grains of cocain and about a grain of morphin daily.

He received a total of ten infusions in four days, and was given hypnotics the first three nights. He had some discomfort from nausea and leg pains on the second day, and was restless at times on the third day. He was discharged on the fifth day.

Case 4.—A man, aged 43, had used morphin for twenty-four years, and was using 8 grains daily hypodermically when he presented himself for treatment. He was addicted to the occasional use of cocain. The Wassermann test was strongly positive.

With this patient the treatment was unnecessarily prolonged owing to the fact that he surreptitiously obtained morphin on the seventh day. He was a charity patient taking treatment under more or less pressure, and was never very wholehearted about giving up his morphin.

He received seventeen infusions during the first eight days, and four infusions on the four succeeding days. He received hypnotics only once—on the day following his self-administered dose of morphin. He was never markedly uncomfortable during the entire treatment, and he had no insomnia. His chief difficulty was a tendency to nausea and vomiting on taking solid food, and he was accordingly kept on liquid diet for a week. After the first day he frequently asked that his infusions be postponed, as he was feeling comfortable. But despite the fact that he evinced no acute withdrawal symptoms, he frequently complained of nervousness and restlessness. At the end of his second week he was therefore given a morphinless Towns-Lambert treatment as a matter of experiment. He showed considerable improvement after this treatment. He was discharged at the end of three weeks.

Case 5.—A woman, aged 40, had used morphin for twenty years, and was taking from 8 to 12 grains a day hypodermically. She used cocain occasionally. The Wassermann test was strongly positive.

She received twenty infusions during the first eight days, and five infusions during the succeeding five days. The first five days she received 30 grains of chloral at bedtime. After this the hypnotic was tapered off, and during the following week the patient was at times troubled with sleeplessness.

On the first day of treatment the patient was entirely comfortable. On the second day she had definite withdrawal symptoms: restlessness, leg pains, nausea and vomiting. The same symptoms were present, though in a less degree, on the afternoon of the third day, but they were considerably relieved by the infusions. The patient had no acute withdrawal symptoms after the third day, but each afternoon she complained of nervousness and restlessness. The nervousness was relieved by hot baths, but as it continued to recur each afternoon, the patient was given a morphinless Towns-Lambert treatment at the end of two and a half weeks. She improved after this treatment, but was still restless at times. As stated, the patient had a positive Wassermann reaction, and it is possible that her malaise may have been partly due to her syphilitic condition. She was discharged at the end of three and a half weeks.

Case 6.—A man, aged 27, who had used morphin for seven years, and was taking 10 grains a day hypodermically, received eleven infusions in four days. He was given hypnotics the first four nights. He was restless during the afternoon and evening of the second day, but had no acute withdrawal symptoms. He seemed quite comfortable at all other times, and was often singing and whistling. He was discharged at the end of a week.

SERIES II. PATIENTS TREATED BY TOWNS-LAMBERT METHOD AND SALINE INFUSIONS

The patients in this series were given the routine Towns-Lambert treatment supplemented by saline infusions. Before treatment was begun, a patient was kept under observation to determine the minimum amount of morphin necessary to keep him comfortable for a twenty-four hour period. The initial dose then given with rapid reduction was two thirds of this minimum amount. Hypnotics were not necessary during the course of the Towns-Lambert treatment, since the patient was receiving morphin, and they were hardly practical, since the patient had to be disturbed every hour to receive his belladonna mixture.

Cases 1 and 2.—These two patients were men in their forties who had used morphin for about a year and were taking only 1 or 2 grains daily.

They were given the routine Towns-Lambert treatment, which was supplemented by two infusions during the last six or eight-hour period, this period being marked in both cases by considerable discomfort. The discomfort was not greatly relieved by the infusions, but on the following day both patients were in excellent condition and remarked on their well-being. Both patients were discharged on the fifth day.

Case 3.—A man, aged 41, had used morphin for fifteen years and during this period had undergone several cures and several relapses. At times he indulged in cocain. When he presented himself for treatment he was using 8 grains of morphin a day by hypodermic injection.

The initial dose of morphin given in the Towns-Lambert treatment was 3 grains. He received nine infusions during the first five days of treatment.

On the second day the patient was restless for several hours before receiving his last dose of morphin. On the third day he was extremely nervous and uncomfortable during the latter part of the afternoon and early evening. He was then given 85 grains of chloral in broken doses, following which he slept intermittently through the night. After the third day he had no discomfort, and hypnotics were necessary only once subsequently. He was discharged the fifth day.

Case 4.—A man, aged 26, who had used morphin for two and a half years, and was using 4 or 5 grains daily by hypodermic injection, and who occasionally used cocain, was given the Towns-Lambert treatment with an initial dose of 1½ grains of morphin. He was given seven infusions in four days. He showed no marked distress at any period of the treatment, though he was restless at times during the first four or five days. He had no difficulty from sleeplessness. He was discharged at the end of two weeks.

Case 5.—A woman, aged 40, had used morphin for twenty-two years, and was taking 3 grains daily by hypodermic injection when she presented herself for treatment. Occasionally she used cocain. The Wassermann test was strongly positive.

The patient was given the Towns-Lambert treatment with an initial dose of 1 grain of morphin. She received five infusions in three days.

The first night and the morning of the second day were marked by discomfort with some nausea and vomiting. (The patient was probably started with too small an initial dose of morphin.) The afternoon and evening of the second day were tolerably comfortable, though the patient at times complained of nausea. She managed to sleep the second night between her belladonna capsules. She was nervous and restless the third day, but experienced no acute withdrawal symptoms. She was given 15 grains of chloral and 15 grains of sodium bromid at bedtime, but spent a rather wakeful night. After the third day the patient had only one period of nervousness, this being on the fourth evening. She was given no further hypnotics. She was discharged the sixth day.

Case 6.—A woman, aged 52, had used morphin for fifteen years, and was using 3 grains daily by hypodermic injection. At times she used cocain. The Wassermann test was strongly positive.

The patient was given the Towns-Lambert treatment with an initial dose of 1 grain of morphin. She received five infusions in three days. She was nervous and restless during the latter half of the second day. She was also nervous on the third day. There was some nausea accompanying the nervousness, but the patient vomited only once or twice. Her discomfort was considerably relieved by the infusions. She was given hypnotics on the third evening, but afterward slept well without them. There was no discomfort after the third day. The patient was discharged on the sixth day.

BROADER ASPECTS OF MORPHINISM

We should bear in mind that 75 per cent. of morphinists have contracted their habit through the careless administration of morphin by physicians; consequently they are by-products from the practice of the medical profession. A majority of the remaining 25 per cent. owe their habit largely to the former careless sale of morphin consequent on government negligence.

In regard to the present position of the morphinist: When the Harrison Narcotic Act came into force in March, 1915, it automatically stopped the supply of morphin available to addicts through legitimate channels. It did not stop the morphinist's physiologic need for the drug, however, and it did not provide medical treatment to remove this need. Consequently, while beneficent in its intent and doubtless beneficent in its ultimate and total result, the act imposes unwarranted suffering on existing addicts.

Even the victims of the morphin habit are entitled to a square deal, and it would seem that the least that could be done to alleviate their misery would be to register them and license them to receive their morphin at the hands of a duly authorized physician or government agent. Such a procedure would have the additional advantage of stopping the illicit traffic in morphin.

It would be better to cure these addicts, however, than to license them; and they must be cured in order to be reformed, for their disability is more physical than moral. They were neither cured nor reformed with the enactment of the Harrison act; they were merely designated as the prey of illicit dealers. These dealers create more morphinists; and by their extortion they impel their victims to prostitution and crime. Thus they bring confusion into the reforms originally purposed by the Harrison act.

900 Metropolitan Building.

PNEUMONIA FOLLOWING INFLUENZA (AT CAMP PIKE, ARK.)

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CAMP PIKE, LITTLE ROCK, ARK.

The existence of an epidemic of influenza at Camp Pike was recognized when 214 cases of influenza were admitted to the base hospital, September 23. The epidemic was foreshadowed by a steady increase in the number of admissions to the base hospital diagnosed as acute bronchitis. This increase began about September 1, and on September 18 there were fifty admissions with this diagnosis.

Beginning September 23, the number of cases showed a sudden and alarming increase. September 27, there were 1,037 new cases, and the number continued in the neighborhood of 1,000 a day until October 3, when the final decline began. During the period from September 20 to October 19, there were 11,899 cases of influenza. Table 1 gives the number of cases of influenza by days from September 1 to October 31, including those cases diagnosed as acute bronchitis during the first part of September, and also the number of cases of pneumonia having onset on each day.

During the two months covered by the table there occurred 12,393 cases of influenza and 1,499 cases of pneumonia. Only two patients died with a diagnosis of uncomplicated influenza (not confirmed by necropsy), while of the patients with pneumonia, 466 died. Of the patients with influenza, therefore, 12.1 per cent. developed pneumonia, and the mortality for pneumonia was 31 per cent. The mortality for the epidemic as a whole was 3.8 per cent. of those attacked by influenza.

The most striking feature of the epidemic was the extremely rapid spread of the infection throughout the camp. Starting September 22 in a regimental area situated in the extreme southwestern corner of the camp, the disease had within four days appeared throughout the camp proper, and four days later appeared in two outlying encampments, situated respectively 1 mile north and 3 miles east of the main camp.

No single organization escaped the infection, and during the thirty days from September 20, 23.3 per cent. of the total population of the camp suffered from the disease. The figures given herewith are based on a detailed study of 11,725 cases occurring between September 20 and October 14, and comprise practically the whole of the epidemic.

The disease displayed a striking selective incidence among the men who had been in camp less than one month. During the period from August 20 to October 1 there had arrived in camp 23,216 new men, and during October 553 additional men arrived. Among these new men there developed 7,268 cases of influenza, an attack rate of 30.6 per cent. There were in camp, October 1, 28,782 men who had been in camp prior to August 20. Of these, 4,462 developed influenza, an attack rate of 15.5 per cent., or almost exactly half the attack rate of the new men. This disparity between the attack rates of old and new men was true of both white and colored men.

As between white and colored men there were marked and interesting differences in the rates of attack. The total exposed population, including those in camp October 1, and those arriving during October, was 52,551 men, of whom 41,778 were white and 10,773 were colored. The white men developed 10,296 cases of influenza, a rate of 24.6 per cent., while the negroes developed 1,429 cases, a rate of 13.3 per cent.

That this difference in susceptibility is not due to any essential racial immunity is shown by the experience of a draft of 1,954 negroes who arrived in camp between September 23 and 28. Of these men, 1,860 were transferred between September 27 and September 30 to the negro tent colony at Fort Roots. In this camp at the time of their arrival there were 2,130 negroes, most of whom had been in camp six weeks or longer. There had been no recognized cases of influenza in this camp prior to the arrival of the new draft. September 30, one of the new men developed influenza, followed on the next day by forty-seven cases among the new men, and on the next, October 2, by 462 cases, including a considerable number among the old men. Between September 30 and October 14 there were 972 cases of influenza in the camp, with 107 cases of pneumonia. Of the 972 cases, 810 were in the men of the new draft and 162 in the old men in camp. The rate of incidence for the new men was 43.6 per cent., about as high as that of any organization in Camp Pike, while that of the old men was 7.6 per cent., approximately equal to that of negroes of similar length of service in Camp Pike.

TABLE 1.—NUMBER OF CASES OF INFLUENZA AND PNEUMONIA AT CAMP PIKE, ARK., FROM SEPT. 1 TO OCT. 31, 1918, BY DAYS OF ONSET

Day September	Cases		Day October	Cases	
	Influenza	Pneumonia		Influenza	Pneumonia
1	(8)*	1	1	864	126
2	(8)	3	2	1,214	142
3	(13)	2	3	857	113
4	(14)	1	4	572	129
5	(8)	3	5	262	86
6	(11)	3	6	252	89
7	(20)	4	7	226	93
8	(16)	3	8	193	76
9	(23)	1	9	224	42
10	(25)	3	10	132	66
11	(25)	4	11	141	54
12	(15)	1	12	72	34
13	(27)	4	13	36	15
14	(27)	7	14	44	13
15	(30)	10	15	12	9
16	(40)	10	16	21	19
17	(37)	7	17	13	8
18	(52)	5	18	17	8
19	(42)	11	19	16	9
20	(50)	12	20	18	11
21	(57)	10	21	13	5
22	(89)	13	22	5	6
23	214	15	23	11	11
24	436	13	24	3	5
25	885	25	25	8	7
26	797	16	26	0	3
27	1,037	23	27	3	1
28	992	30	28	0	1
29	993	40	29	3	3
30	1,166	35	30	1	0
			31	3	0
Totals				12,393	1,499
Died				2	466

* Cases in parentheses, admitted with diagnosis of acute bronchitis.

The time of development of pneumonia in relation to influenza is shown in the table. In general, the peak of the curve of pneumonia followed approximately one week after that of influenza, although the highest single day for both coincided. The general incidence of pneumonia followed that of influenza, and the preponderance of new men among the pneumonia cases was even more striking than among the influenza cases. Of the pneumonia patients, 1,006, or 67.5 per cent., were new men, while 62 per cent. of the patients with influenza were new men. The rates of incidence of the two diseases in old and new men are given in Table 2.

TABLE 2.—INCIDENCE IN OLD MEN AND NEW MEN

	Population	Influenza		Pneumonia	
		No.	Per Cent.	No.	Per Cent.
Old men	27,782	4,462	15.6	493	1.7
New men	23,769	7,263	30.6	1,006	4.2
All men	51,551	11,725	22.7	1,499	2.9

Of the new men with influenza, 13.8 per cent. developed pneumonia, as against 11 per cent. of the old men.

The incidence of pneumonia in cases of influenza was much higher among the negroes than among the whites. Of 10,296 white patients with influenza, 12.7 per cent. developed pneumonia, while among 1,429 negroes with influenza, 283, or 19.8 per cent., developed pneumonia. The rate of fatality from pneumonia was slightly higher in white men than in negroes. Of 1,216 white pneumonia patients, 386, or 31.7 per cent., died, while of 283 negro pneumonia patients eighty, or 28.2 per cent., died.

September 24, the base hospital contained 2,789 patients; the hospital had been planned to care for 2,009 patients. From September 24 to 30 from 188 to 486 patients were admitted daily to the hospital, so that on September 30 the hospital contained 3,587 patients. October 5, the number of patients reached the maximum, 4,233. September 24, by order of the camp surgeon the milder cases of influenza were treated in barracks. Every agency for the receiving, the housing and the care of patients throughout the camp was strained by a demand far beyond that for which it had been planned. Patients were crowded in the infirmaries, in the ambulances, in the receiving room of the hospital, in the wards and even in corridors between the wards, where it was essential to shelter them. It was necessary to open and organize in great haste, with inadequate equipment, wards for the receipt of patients with pneumonia. The medical personnel of the hospital was large at the time; the nursing corps was organized for the care of 2,440 patients; one quarter of them (sixty-two of 240) were attacked by influenza.

The pressing need of diminishing the overcrowding of the hospital was immediately recognized by the commanding officer, and through the authorities of the camp, barracks previously used by three replacement regiments about a quarter of a mile distant were placed at the disposal of the hospital. Patients were moved from the overcrowded hospital into this annex as fast as the facilities available permitted. October 3, 523 patients were transferred to the annex; on the 4th, 452; on the 5th, thirty-two, and on the 6th, 387. In the main hospital, twenty wards for patients with pneumonia were added to the two that already existed. The installation of cubicles and other necessary measures required some time, and during the early period arrangements for the care of patients with pneumonia in some of the new wards were necessarily wholly unsatisfactory. With relief of overcrowding, conditions rapidly improved. The influence of overcrowding on pneumonia will be discussed later.

INFLUENZA

The influenza that has occurred here has been characterized by sudden onset with chilliness and sharp elevation of temperature, often from 103 to 105 F. There has been extreme prostration, severe backache, suffusion of the face, and injection of the conjunctivae. Coryza, pharyngitis and tracheitis with a harrassing cough have been almost invariable; epistaxis and slight hemoptysis, frequent. In the majority of cases the temperature has subsided after from two to five days, usually rather abruptly. About one third of the patients have developed purulent bronchitis.

Search has been made for *Bacillus influenzae* in a group of twenty-three patients from one to six days after the onset of the disease. From each individual a culture on blood agar (5 per cent. horse's blood in meat, infusion agar) has been made (*a*) from the nose, (*b*) from the throat and (*c*) from sputum; and (*d*) sputum has been injected into the peritoneal cavity of a white mouse.

TABLE 3.—PRESENCE OF B. INFLUENZAE IN TWENTY-THREE CASES OF INFLUENZA *

Number	Day of Disease	Nose	Throat	Sputum Culture	Sputum Passed through Mouse
1	1	+	+	+	+
2	4	—	+	+	+
3	5	—	—	+	—
4	4	—	—	+	+
5	3	—	—	+	+
6	4	—	+	+	?
7	2	—	+	—	?
8	4	+	+	+	—
9	5	—	+	+	+
10	2	+	—	—	—
11	2	—	+	?	+
12	3	?	+	+	+
13	3	—	—	—	+
14	2	—	—	+	+
15	3	?	—	—	+
16	1	—	+	+	+
17	3	—	+	—	+
18	4	+	+	?	+
19	6	—	—	+	+
20	1	—	+	+	+
21	2	—	+	—	+
22	4	+	—	+	+
23	3	?	—	—	+
Totals..............		5	13	14	18

* The interrogation point indicates that the plate was contaminated.

Multiple cultures have demonstrated in some instances in almost pure culture the presence of *B. influenzae* in all of these cases of early influenza. Passage of sputum through the white mouse has proved the most effective means of demonstrating the organism; cultures from the sputum or throat have been nearly as effective. There is some difficulty in demonstrating the organism in consequence of the minute size of colonies, which may be wholly overlooked by those not familiar with its cultural characters, in the presence of other organisms; for example, in the zone of hemolysis of the hemolytic streptococci the colonies become conspicuous.

BRONCHITIS WITH INFLUENZA

A considerable number of those attacked by influenza develop bronchitis. Of 103 influenza patients kept under observation, thirty-six had purulent bronchitis. The sputum is profusely mucopurulent and sometimes streaked with blood. In these cases numerous moist râles may be heard. The sputum on direct smear or on culture almost invariably shows *B. influenzae*, often in great numbers.

In attempting to establish the relation of *B. influenzae* to influenza and its complications, we have borne in mind the observation made at Camp Funston that *B. influenzae* was found in the mouths of 35.1 per cent. of all healthy men examined and was present, in the absence of an epidemic of influenza, in the sputum of a very large proportion of those suffering with bronchitis. Our observations here have shown that the organism is invariably present in the upper respiratory passages of patients with influenza.

PNEUMONIA WITH INFLUENZA

Pneumonia has occurred in 12.1 per cent. of all influenza patients in this camp, and all pneumonia patients have been treated in the base hospital. Among 103 influenza patients selected for observation from the onset of influenza, four developed clinical evidence of bronchopneumonia and three of lobar pneumonia.

The clinical features of pneumonia following influenza may be best described by division into three groups. It should be borne in mind, however, that the picture has been a complex one and that correct clinical interpretation is not always possible, since many cases do not conform sharply to any one type. These groups are: (1) bronchopneumonia; (2) lobar pneumonia, and (3) lobar pneumonia with purulent bronchitis.

In the first group, bronchopneumonia has usually developed gradually as a sequence to influenza in which purulent bronchitis has occurred, one condition passing into the next without sharp demarcation. In the second group apparent recovery from influenza has occurred, as evidenced by fall of temperature to normal. After from one to three days of normal temperature, typical lobar pneumonia with characteristic rusty sputum has developed suddenly. In the third group, lobar pneumonia has developed in cases of influenza that have been complicated by purulent bronchitis. Such cases have occasionally presented the picture of both lobar pneumonia and bronchopneumonia in the same individual.

Bacteriologic study has disclosed that all these types of pneumonia have been of pneumococcus origin in most instances. As described in greater detail below, some have been further complicated by a superimposed *Streptococcus hemolyticus* infection.

The bacteriology of the sputum early in the disease has been studied by inoculation of white mice and by direct cultures. The occurrence of pneumococci, *B. influenzae* and *Streptococcus hemolyticus* in sixty-nine cases of lobar pneumonia has been as follows:

Pneumococcus Type I, nine times (once with Type IV), or 13.1 per cent.; Type II, three times, or 4.3 per cent.; Type II atypical, fifteen times, or 21.7 per cent.; Type III, five times (once with Type IV), or 7.3 per cent; Type IV (alone), thirty-seven times, or 53.6 per cent.

Streptococcus hemolyticus has been found three times, or 4.3 per cent., in all three instances associated with pneumococcus Type IV.

B. influenzae has been found forty-three times, or 62.2 per cent., always associated with pneumococcus (Type I, six times; II, once; II atypical, ten times; III, twice, and IV, twenty-four times).

Pneumococcus Types I and II, which have a predominant part in the production of the pneumonia of civil life, have been present in a relatively small proportion of cases, whereas Type II atypical and Types III and IV are found with 82.6 per cent. of cases.

The bacteriology of the sputum in forty-three cases of bronchopneumonia was as follows:

Pneumococcus Type I, none; Type II, once, or 2.3 per cent.; Type II atypical, three times, or 7 per cent.; Type III, three times, or 7 per cent.; Type IV, thirty times, or 69.8 per cent.

Streptococcus hemolyticus has been found six times, or 14 per cent., twice with pneumococcus Type IV and four times with no pneumococci.

B. influenzae has been found thirty-eight times, or 88.4 per cent., associated with pneumococci thirty-three times (Type II, once; II atypical, three times; III, three times; IV, twenty-six times); with *Streptococcus hemolyticus* three times, and alone twice.

Here again pneumococcus Type IV has been found predominant, being present in more than two thirds of the cases. *Streptococcus hemolyticus* unassociated with pneumococci has been found in 9.3 per cent. of these cases. *B. influenzae* unaccompanied by pneumococci or hemolytic streptococci was present in two cases; but in view of observations made at necropsy, it is doubtful if this organism alone was responsible for pneumonic consolidation of the lungs.

PATHOLOGY AND BACTERIOLOGY OF PULMONARY LESIONS FOUND AT NECROPSY

The characters of the group of pneumonias that have occurred in association with the present outbreak of influenza may be defined by the pulmonary lesions found at necropsy, described in relation to the associated bacteria.

Two hundred necropsies have been performed during the outbreak of pneumonia. For the purpose of the present report it has seemed desirable to analyze seventy-nine cases which, occurring with few exceptions in sequence at the height of the outbreak, have been subjected to careful bacteriologic study. Cultures have been made from the heart's blood, from the lung and from a bronchus. When the hemolytic streptococcus has been found in the lung it has usually been demonstrable in the blood. The number of instances in which *B. influenzae* has been obtained in cultures would have been diminished more than half if cultures from the mucosa of the bronchi had not been made.

CHANGES IN THE BRONCHI

Necropsies have shown the presence of purulent bronchitis in a large proportion of those who have died with pneumonia during the course of the present epidemic of influenza. When edema of the lungs is present, the content of the small bronchi is not usually purulent, though the mucosa may be intensely injected. *B. Influenzae* can be grown with few exceptions from the mucopurulent material that wells out of the cut bronchi or from material scraped with a platinum loop from the main branches. In twenty-seven of thirty instances of purulent bronchitis from which cultures were made at necropsy, *B. influenzae* was found.

When purulent bronchitis is found, the lungs are very voluminous and preserve the shape and size of the thoracic cavity after removal; they show little tendency to collapse, even when cut. Most of the affected lungs, being from men who have come from rural districts, are pale pink and almost wholly free from coal pigment. After section a small droplet of mucopurulent fluid marks the site of each bronchus or bronchiole and doubtless explains the failure of the lung to collapse. The cyanosis of the patients with the disease is doubtless referable in part at least to the same change. The mucosa of the bronchi is intensely injected. Further evidence of severe injury to the bronchi is the frequent occurrence of a zone of hemorrhage about the smaller bronchi, particularly in the lower lobes. At times this zone of hemorrhage gives place to an encircling zone of pneumonic consolidation. Further evidence of profound injury to the bronchial wall is the dilatation that the small bronchi undergo. Bronchiectasis is most conspicuous in the basal part of the lower lobes, and is usually more advanced on the left side than on the right. Small bronchi with no cartilage in their wall may reach a diameter of 0.5 cm. More advanced bronchiectasis has been found in several necropsies performed late in the outbreak.

Among seventy-nine necropsies, selected from the 200 performed, because they have been in sequence and accompanied by careful bacteriologic study, there have been thirty-six instances of lobar pneumonia, nineteen instances of bronchopneumonia, one instance of associated lobar pneumonia and bronchopneumonia, and twenty-three instances of pneumonia with suppuration of lung tissue.

LOBAR PNEUMONIA

A group of thirty-six cases of pneumonia, taken at necropsy in sequence and studied bacteriologically, gives further knowledge of the bacteriology of the disease as it has occurred here. The results of this study have been as follows:

Pneumococcus Type I, three times; Type II, none; Type II atypical, five times; Type III, six times; Type IV, nineteen times; total, thirty-three, or 91.7 per cent.

Streptococcus hemolyticus with pneumococci, ten times; with no pneumococci, three times; total, thirteen, or 36.1 per cent.

B. influenzae thirty-one times, or 86.1 per cent.

B. influenzae has been present with few exceptions. Of pneumococci, which are frequently found in the mouths of healthy men, Type II atypical and Types III and IV are predominant, Type IV occurring in more than half of all cases, whereas Type I has been found only three times in the present series, and Type II has been found in no typical instance of lobar pneumonia. Hemolytic streptococci have been found in approximately one third of those cases of lobar pneumonia that have been unassociated with gross evidence of suppuration. It seems probable that the organism has invaded the lung late in the disease, and doubtless the micro-organism in many instances has had an important part in producing the fatal issue. This subject will be considered later when ward infection is discussed. When the hemolytic streptococcus has been unassociated with the pneumococcus it is probable that the latter has disappeared from that part of the lung from which the culture has been taken.

BRONCHOPNEUMONIA

Two varieties of bronchopneumonia have been observed repeatedly. They do not include all of the instances of bronchopneumonia that occurred: (*a*) Bronchopneumonia may cause confluent consolidation of large parts of lobes; patches of consolidation, accurately limited to the secondary lobules of the lungs, occur. The larger patches of consolidation are sharply limited by lobule boundaries so that the consolidated tissue on the cut section projects conspicuously above the air-containing lung substance. Even within the large consolidated areas, which are blackish red, red or grayish red and finely granular, the lobules are well defined; but there is no thickening of the interstitial tissue. Two instances of pneumonia due to pneumococcus Type II were of this character. In three other cases the lesion was caused by pneumococcus Type IV. (*b*) This confluent lobular consolidation is not the predominant variety, and disseminated nodules or patches of reddish, gray or yellow consolidation are more commonly seen. The bacteriology of nineteen cases of bronchopneumonia has been as follows:

Pneumococcus Type I, none; Type II, twice; Type II atypical, none; Type III, none; Type IV, ten times; total, twelve, or 70.6 per cent.

Streptococcus hemolyticus with pneumococci, seven times; with no pneumococci, five times; total, twelve, or 70.6 per cent.

B. influenzae, seventeen times, or 89.4 per cent.

Pneumococci doubtless have a predominant part in the production of the disease, and hemolytic streptococci act as secondary invaders. Nevertheless it is possible that hemolytic streptococci in the presence of influenza may independently invade the lung and produce bronchopneumonia without suppuration.

SUPPURATIVE PNEUMONIA

Suppuration has occurred in more than one fourth of the cases that have been examined postmortem. Three varieties of suppurative lesion have been found.

(*a*) Localized abscess formation within a patch of pneumonic consolidation. A patch of consolidation about one abscess is occasionally the only evidence of pneumonia, but more frequently there are multiple patches of bronchopneumonia. The abscess or abscesses are usually situated immediately below the pleura, often separated from the cavity by remains of the membrane no thicker than tissue paper, and the cavity is the site of purulent pleurisy with effusion varying from several hundred up to 1,700 c.c. In all but one of eleven cases of abscess with bronchopneumonia, hemolytic streptococci were found both in the blood of the heart and in the affected lung. In the one exceptional case, pneumococcus Type IV was obtained from the blood; no growth was obtained on the plate inoculated from the lung, and hemolytic streptococci with *B. influenzae* were found in the bronchus. *B. influenzae* was found in the bronchi (six) or in the lung (two) in all but three of these eleven cases. There can be no doubt that the suppurative process due to hemolytic streptococci was in some instances superimposed on pneumonia caused by pneumococci. In one instance, associated pneumococcus Type II was present in blood, lungs and bronchus; in one instance, pneumococcus Type IV was present in blood and bronchus. Of less significance has been the demonstration of associated pneumococci, Type II atypical or Type IV, in the bronchi or lungs (three instances).

(*b*) Pneumonia with suppuration of the interstitial tissue. In association with bronchopneumonia (three times), with typical lobar pneumonia (twice) or with all defined patches of consolidation (three times), probably best classified as bronchopneumonia, suppuration of the interstitial tissue of the lung has occurred eight times among our cases with completed bacteriologic examination. The interstitial septums appear as conspicuous yellow lines from which purulent fluid may be scraped. The septums are usually swollen to a thickness of about 1 or 2 mm., but wide lines of suppuration 0.5 cm. across are seen. Edematous swelling of septums outside of the consolidated tissue is not infrequently found. These suppurating septums extend up to the pleura, and the overlying lymphatics are often widely distended with fluid. Purulent pleurisy usually with copious effusion up to 1,900 c.c. has been found. In seven of these eight cases, hemolytic streptococci were found both in the heart's blood and in the affected lung. In one instance of lobar pneumonia with interstitial suppuration, we found pneumococcus Type IV with no hemolytic streptococci in the heart's blood and lungs. By unfortunate error, no culture from the affected lung is recorded. The relation of the lesion to associated infection with pneumococci is important. Pneumococcus Type II was found in one instance associated with hemolytic streptococci in the heart's blood, lung and bronchus. In one instance, pneumococcus Type II atypical with *B. influenzae* was found in the sputum during life unassociated with hemolytic streptococci, whereas three days later pneumococci were not demonstrable in the lungs or bronchi, and hemolytic streptococci were found in blood, lungs and bronchus. In another case, pneumococcus Type IV and hemolytic streptococci were found in the sputum during life, whereas after death five days later pneumococci had apparently disappeared and hemolytic streptococci were found in the blood and the bronchus, with *B. influenzae* in the latter situation.

(*c*) Multiple abscesses clustered about bronchi. In four instances in the group of cases under consideration, suppuration has occurred within bronchopneumonic patches clustered about a medium sized bronchus. These abscess cavities in communication with the bronchus are several millimeters up to 0.5 cm. in diameter, and are surrounded by gray, consolidated tissue. The patch of consolidation studded with abscesses may be scarcely more than 5 cm. across, but a much larger area may be involved. There has been no empyema nor plural effusion in these cases.

The bacteriology of the four cases cited has been as follows:

Necropsy 280.—Hemolytic streptococci were found in the heart's blood, in consolidated lung tissue and in the bronchus. In the bronchus were found *B. influenzae* and a few staphylococci. Culture from the abscess was contaminated.

Necropsy 322.—The blood was sterile. *Staphylococcus aureus* was obtained from consolidated lung; *Staphylococcus aureus* and pneumococcus Type III were obtained from the abscess.

Necropsy 329.—The blood was sterile. *Staphylococcus aureus* and pneumococcus Type IV were obtained from the abscess; *B. influenzae*, *Staphylococcus aureus* and pneumococcus Type IV from the bronchus.

Necropsy 333.—The blood contained pneumococcus Type II atypical; *Staphylococcus aureus* and pneumococcus Type II atypical were obtained from the abscess; *Streptococcus hemolyticus* from the lung on the opposite side; *Staphylococcus aureus*, *B. influenzae* and a few hemolytic streptococci from the bronchus.

The foregoing observations indicate that *Staphylococcus aureus* may be engrafted on a pneumococcus pneumonia and cause suppuration in clustered foci, unaccompanied by empyema.

WARD INFECTION

Transmission of Streptococcus Pneumonia.—The fatal effect of the necessary overcrowding of this hospital is well shown by a comparison of the death rate from pneumonia in wards, on the one hand, which had long been organized for the care of patients with pneumonia, and in wards, on the other hand, which were opened for patients with pneumonia and immediately overfilled at a time when the hospital was overwhelmed by the epidemic of influenza.

Ward 3 was provided with cubicles and conducted by medical officers, nurses and enlisted corps men accustomed to the care of patients with pneumonia. The figures in Table 4 show the number of patients in the ward each day from September 6 to October 5, the number of patients admitted each day and the number of deaths among patients admitted on the corresponding day. The first period of ten days immediately preceded the present outbreak of pneumonia (Table 1). During the second period of ten days the incidence of pneumonia gradually increased, and during the third period maintained its maximum.

TABLE 4.—PNEUMONIA IN WARD 3

	Number of Patients in Ward	Number of Patients Admitted Each Day	Number of Patients Admitted on Corresponding Day Who Subsequently Died *	Total Deaths Among Patients Admitted During Period of Ten Days		Percentage of Deaths Among Patients Admitted During Period of Ten Days
Sept. 6	19	1	0	3	Necropsy: Pneumococcus 3 Strep. hem. 0	27.2
7	20	2	0			
8	18	0	0			
9	17	1	1			
10	15	0	0			
11	17	2	2			
12	19	2	0			
13	20	1	0			
14	20	1	0			
15	21	1	0			
Total.....		11				
16	25	6	2	16	Necropsy: Pneumococcus 13 Strep. hem. 1 Undetermined 2	30.7
17	31	8	3			
18	38	6	2			
19	42	6	1			
20	45	3	1			
21	51	7	3			
22	55	9	1			
23	60	5	3			
24	57	0	0			
25	57	2	0			
Total.....		52				
26	60	3	0	8	Necropsy: Pneumococcus 5 Strep. hem. 1 Undetermined 2	34.7
27	57	0	0			
28	60	3	2			
29	60	2	0			
30	60	3	1			
Oct. 1	55	2	1			
2	59	4	2			
3	58	0	0			
4	56	1	0			
5	61	5	2			
Total.....		23				

* In this and in the following three tables, these figures do *not* indicate the number of deaths on the *corresponding* dates but represent deaths which eventually occurred among patients admitted on these dates.

It is noteworthy that the death rate from pneumonia among those admitted during the first ten days was 27.2 per cent. at a time when the ward contained from fifteen to twenty-one patients. It increased during the second ten days, when the ward contained from twenty-five to sixty patients, to 30.7 per cent. With further increase of the ward population to from fifty-five to sixty-one, the death rate among those admitted during this period rose to 34.7 per cent. If the case of pneumonia due to infection with hemolytic streptococcus which occurred in each of the second and third periods be omitted, the figures for the three periods will be, respectively, 27.2, 28.8 and 30.4 per cent. In spite of the overcrowding of the ward, the introduction of two cases of streptococcus pneumonia under the favorable conditions existing in the ward did not cause an outbreak of the infection.

Ward 8 had long been used for the care of colored patients with pneumonia. Cubicles were in use and precautions were taken against the spread of infection. During the period from September 1 to September 20, all new patients with pneumonia admitted were treated on the porch of the ward, the remaining population of the ward being largely convalescents who were placed inside. During the period from September 21 to October 5, when the influenza epidemic was at its height, the ward rapidly filled with active cases of pneumonia and became distinctly crowded. Nevertheless, no outbreak of secondary infection with the hemolytic streptococcus occurred.

Ward 2 was opened, September 28, during the period in which twenty new wards for pneumonia were organized. From September 26 to October 1, the cubicle system was not in use, the ward was crowded, organization was imperfect, and few precautions were taken to prevent the transfer of infection from one patient to another. October 2, the cubicle system was introduced, and strict and efficient precautions for the prevention of infection were instituted.

Among patients admitted between September 26 and 28 there was a ward epidemic of streptococcus pneumonia. Nine of the fifty-seven patients admitted to the ward between September 26 and October 1 were shown by examination of the sputum to have pneumococcus pneumonia free from hemolytic streptococci. All died, seven with infection by the hemolytic streptococcus, one with what was presumably an acquired infection with pneumococcus Type III (pneumococcus Type IV was found in the sputum on admission), and one with undetermined cause (*no* necropsy was held). The sputum of no other patients in this ward was examined on admission.

September 29 (the beginning of the second period), the porch of the ward was put into use, and of twelve patients admitted on this date eleven were put on the porch. Of these eleven patients, eight recovered and three died, of whom two were transferred to beds within the ward on the day after admission. The use of the porch doubtless explains the diminished mortality of this period.

TABLE 5.—PNEUMONIA IN WARD 8 (COLORED)

	Number of Patients in Ward	Number of Patients Admitted Each Day	Number of Patients Admitted on Corresponding Day Who Subsequently Died	Total Deaths Among Patients Admitted During Two Periods		*Percentage of* Deaths Among Patients Admitted During Two Periods
Sept. 1	48	1	0	2	Necropsy: Pneumococcus 2 Strep. hem. 0	8
2	47	2	0			
3	45	0	0			
4	47	4	0			
5	45	0	0			
6	29	3	0			
7	25	2	0			
8	28	2	0			
9	27	0	0			
10	26	0	0			
11	26	0	0			
12	26	1	0			
13	27	1	0			
14	27	0	0			
15	31	4	0			
16	32	1	1			
17	19	2	0			
18	19	0	0			
19	20	2	1			
20	28	0	0			
Total....		25				
21	26	6	3	20	Necropsy: Pneumococcus 10 Strep. hem. 1 Undetermined 10	33.9
22	31	5	3			
23	36	5	1			
24	40	4	1			
25	43	5	1			
26	44	3	1			
27	45	1	0			
28	47	2	1			
29	48	1	1			
30	46	0	0			
Oct. 1	50	4	0			
2	52	4	1			
3	58	6	3			
4	62	5	1			
5	64	8	3			
Total.....		59				

From October 5 to 7 the ward was closed to further admissions, save six patients transferred from Ward 1 seriously ill; of these all died. After October 7, admissions were limited to patients with pneumonia in whom throat swab had demonstrated *Streptococcus hemolyticus.*

Ward 1 was opened, September 24. During the period from September 24 to October 1, the cubicle system was not in use and there were few precautions to prevent transmission of infection. October 2, the cubicle system was installed, and somewhat insufficient precautions against the spread of contagion were instituted. Beginning October 6, the ward was closed to further admission. Table 7 is divided into two periods, the first ending September 29, because on September 29 and 30 four patients infected with hemolytic streptococci were admitted to the ward. Deaths that occurred (with no reference to date of admission) prior to September 30 were all due to pneumococcus with one exception, namely, a patient entering the ward on September 26 and dying several hours later.

TABLE 6.—PNEUMONIA IN WARD 2

	Number of Patients in Ward	Number of Patients Admitted Each Day	Number of Patients Admitted on Corresponding Day Who Subsequently Died		*Total Deaths Among Patients Admitted During Period of Three Days*	*Percentage of Deaths Among Patients Admitted During Period of Three Days*
Sept. 26	10	10	7	27	Necropsy: Pneumococcus 0 Strep. hem. 23 Undetermined 4	67.5
27	27	17	10			
28	40	13	10			
Total.....		40				
29	51	12	3	6	Necropsy: Pneumococcus 2 Strep. hem. 2 Undetermined 2	35.3
30	49	1	1			
Oct. 1	43	4	2			
Total.....		17				
2	47	6	2	4	Necropsy: Pneumococcus 2 Strep. hem. 1 Undetermined 1	40.0
3	42	0	0			
4	41	4	2			
Total.....		10				

Hemolytic streptococci introduced into Ward 1 containing patients suffering with pneumonia due, as our experience here has shown, to pneumococci, has produced an epidemic of secondary infection with streptococci. Though the ward was evidently in great danger of infection from September 24 to 29, as the result of unfavorable conditions, none appears to have occurred; but with the introduction of the microorganism, September 29 and 30, widespread dissemination of fatal infection was immediate.

TABLE 7.—PNEUMONIA IN WARD 1

	Number of Patients in Ward	Number of Patients Admitted Each Day	Number of Patients Admitted on Corresponding Day Who Subsequently Died		Total Deaths Among Patients Admitted During Period of Three Days	Percentage of Deaths Among Patients Admitted During Period of Three Days
Sept. 24	13	7	2	11	Necropsy: Pneumococcus 5 Strep. hem. 3 Undetermined 3	32.3
25	35	15	4			
26	44	6	3			
27	42	2	0			
28	39	1	0			
29	42	3	2			
Total.....		34				
30	56	15	10	24	Necropsy: Pneumococcus 6 Strep. hem. 14 Undetermined 4	50.0
Oct. 1	54	2	1			
2	59	8	3			
3	51	3	2			
4	56	7	5			
5	56	5	3			
Total.....		40				

The occurrence of ward infection is well shown by the bacteriologic examination of the heart's blood and lungs at necropsy. Up to October 6, necropsies were performed on nearly all patients dying with pneumonia. The results of bacteriologic examination at necropsy of patients dying in pneumonia wards is given in Table 8.

The figures demonstrate that routine necropsies with bacteriologic examination of the blood and lungs of every patient that has died with pneumonia furnishes a certain means of recognizing the occurrence of ward infection with hemolytic streptococci. This means of checking the results of bacteriologic examination of the throat and sputum should never be neglected. The recognition of suppurative pneumonia, even when no cultures are made at necropsy, will indicate that pulmonary infection with hemolytic streptococci exists. It is obviously essential to separate pneumonia patients harboring hemolytic streptococci in the mouth from those that are free from this organism; but the existence of hemolytic streptococci in the mouth of patients with pneumonia is not conclusive evidence that the lung has been invaded.

These necropsies, with the accompanying bacteriologic studies, gave us the first conclusive evidence that the pneumonia in this hospital following influenza was subject to secondary invasion with hemolytic streptococci. They showed that Ward 3 had been maintained almost free from pyogenic infection; they forced the conviction that all patients who might subsequently be admitted to Ward 2 would with relatively few exceptions die with it. The ward was closed. The grave danger to patients entering Ward 1 was recognized, and this ward also was closed to subsequent admissions. The throats of all the 900 patients in the hospital were swabbed as rapidly as accessible facilities permitted, and patients harboring hemolytic streptococci were separated from those that were free from the micro-organism.

TABLE 8.—BACTERIOLOGIC FINDINGS IN PATIENTS DYING IN PNEUMONIA WARDS *

	No Hemolytic Streptococci Found	Hemolytic Streptococci Found
Ward 1	12	7
2	4	24
3	18	1
4	0	1
5	1	0
6	1	0
7	0	1
8	11	0
19	6	2†
20	0	1
22	2	0
26	0	1
33	0	1
49	1	0
Total	56	39

* With the exceptions of Wards 1, 2, 3 and 8, these wards had been opened less than one week.

† One of these cases of streptococcus pneumonia was the wardmaster of Ward 2, whose illness began, October 1, during the period of severe infection of this ward.

Transmission of Pneumococci.—The foregoing observations have demonstrated that streptococcus pneumonia may spread by contagion throughout an entire ward. Subsequent observations have demonstrated that pneumococci may be transmitted in the same way. Opportunity to obtain this evidence has been favored by the predominance of Types IV, III and II atypical among the pneumonias occurring here. Among cases of pneumonia of which the type has been determined between September 6 and October 1, only six instances of Type II pneumonia were found. Two of these cases occurred in Ward 3, and there is evidence that the disease was transmitted from these patients to three others in adjacent beds.

Infection with pneumococcus Type II occurred in a patient, Private P., recovering from pneumonia caused by pneumococcus Type IV. This infection with pneumococcus Type II was apparently acquired from a patient, Private Sw., occupying an adjacent bed.

Private Sw. was admitted to Ward 3 and placed in Bed 3, September 16, one day after the onset of pneumonia. Pneumococcus Type II was found in his sputum. His crisis occurred, September 21, on the sixth day of his illness. At the time Sw. was admitted, Private P. occupied Bed 5, separated by one bed from Sw.; he had been admitted, September 9, and had bronchopneumonia with signs of consolidation in the left lower lobe. Pneumococcus Type IV was found in his sputum. A crisis occurred, September 14, and the temperature remained normal until September 24, save for a sharp rise, September 20 to 21, lasting eighteen hours. A second attack of pneumonia began, September 24, and death occurred, September 30. Necropsy disclosed the presence of lobar pneumonia with gray hepatization of the greater part of the right lower lobe and of the left lung. Pneumococcus Type II was found in the heart's blood and in the lung, and with *B. influenzae* in the right bronchus. Private P. had the opportunity to acquire his second infection from Private Sw.

TABLE 9.—REPORT OF TWO CASES OF PNEUMONIA

Name	Admitted	Bed Occupied	Pneumococcus in Sputum on Admission	Course of Disease	Pneumococcus Found at Necropsy
Private Sw.	Sept. 16	3	Type II	Crisis, Sept. 21	
Private P.	Sept. 9	5	Type IV	Crisis, Sept. 14; second attack of pneumonia, Sept. 24; death, Sept. 30; lobar pneumonia	Type II

Infection with pneumococcus Type II occurred in two patients apparently recovering from other types of infection, in one instance caused by pneumococcus Type II atypical, and in another by Type IV. In both instances pneumococcus Type II has apparently been acquired from a third patient occupying an adjacent bed.

Private Sm. was admitted with pneumonia to Ward 3 and placed in Bed 26, September 18. Pneumococcus Type II was found in the sputum. The patient died, September 27, with bronchopneumonia. There were scattered patches of lobular consolidation and diffuse consolidation of the greater part of the right upper lobe. Pneumococcus Type II was found in the heart's blood.

TABLE 10.—REPORT OF THREE CASES OF PNEUMONIA

Name	Admitted	Bed Occupied	Pneumococcus in Sputum on Admission	Course of Disease	Pneumococcus Found at Necropsy
Private Sm.	Sept. 18	26	Type II	Died, Sept. 27; bronchopneumonia	Type II
Private T.	Sept. 17	28	Atypical II	Crisis, Sept. 19; temperature normal until Sept. 21, when it rose to 104.4; death, Sept. 29; lobar pneumonia	Type II
Private L.	Sept. 16	30	Type IV	Some improvement occurred, Sept. 24 and 25, but temperature did not become normal; death, Sept. 30; bronchopneumonia	Type II

Private T. had been admitted to Ward 3, September 17, with a diagnosis of bronchopneumonia and signs of consolidation in the right lower lobe. Pneumococcus Type II atypical was found in the sputum. Crisis occurred, September 19, and the temperature was normal until 8 p. m., September 21, when there was a sudden rise to 104.4; death occurred, September 29. At necropsy there was firm hepatization with yellow color and characters of lobar pneumonia at posterior parts of both lower lobes; but throughout the remainder of the lungs there were small scattered patches of bronchopneumonic consolidation. Pneumococcus Type II was obtained from the heart's blood and lungs; *B. influenzae* was found in the consolidated part of the lung and in the right bronchus. At the time T. developed his second attack of pneumonia he occupied Bed 28, separated by one bed from that occupied by Sm., admitted with pneumonia caused by pneumococcus Type II.

Private L. was admitted, September 17, with lobar pneumonia and signs of consolidation in the left lower lobe. Pneumococcus Type IV was isolated from the sputum. There was some improvement, September 24 and 25, but the temperature never returned to normal and his condition was worse, September 26, when he developed signs of pericarditis. He died, September 30. The left upper lobe was consolidated, rather flabby and had a homogeneous, fleshy appearance. In other parts of the lung there were small scattered patches of bronchopneumonic consolidation and diffuse purulent bronchitis. Pneumococcus Type II with *B. influenzae* was isolated from the right lung, alone from the left lung, and with *B. inflenzae* and *Streptococcus viridans* from the right bronchus. L., from whose sputum on admission pneumococcus Type IV was obtained, occupied Bed 30, separated by one bed from T. and by three beds from Sm., both of whom suffered with Type II pneumonia.

TABLE 11.—REPORT OF FIVE CASES OF PNEUMONIA

Name	Bed Occupied	Pneumococcus in Sputum on Admission	Course of Disease	Pneumococcus Found at Necropsy
Pg.	48	Atypical II	Returned to duty, Oct. 8	
J.	49	Atypical II	Died, October 4	Atypical II
Lw.	50	I	Crisis; recurrence; died, October 8	Atypical II
Sc.	51	Atypical II	Returned to duty, Oct. 25	
C.	53	Atypical II	Died, September 25	Atypical II

The group of cases that has been described is especially significant because these are the only cases of Type II pneumonia save one recognized before October 1. Private P., in Bed 5, doubtless acquired his infection with pneumococcus Type II from Sw. in Bed 3; Private T., in Bed 28, and L. in Bed 30, from Sm. in Bed 26. It is doubtful if the infections of Sw. and Sm. have any relation to each other.

An instance of the transmission of pneumococcus Type II atypical occurred in Ward 8. Privates Sc. and L. were admitted to the ward, September 21, and assigned to Beds 51 and 50. Privates Pg., J. and C. were admitted to the ward, September 22, and given Beds 48, 49 and 53, respectively. The history of these patients is given briefly in Table 11.

Private Lw., who became ill one day before his admission, suffered with pneumonia caused by pneumococcus Type I, demonstrated by examination of the sputum on the day following admission. *B. influenzae* was found. He was in bed adjacent to J. with Type II atypical, who remained beside him until October 4, and one bed distant from Pg., with Type II atypical, who remained in Bed 48 until October 4, when he was transferred to another part of the ward. On the other side of Lw. was Sc., with Type II atypical, who remained in Bed 51 until October 9, when he was moved to another part of the ward. C., with Type II atypical in Bed 53 died, September 25. Lw. had frank lobar pneumonia with consolidation of the right lower lobe, and crisis occurred, Sept 29, that is, on the ninth day of illness. The temperature remained normal until October 2, when there was sudden elevation of temperature to 104.2. Death occurred, October 8. Necropsy disclosed lobar pneumonia with gray hepatization of the right upper lobe. The heart's blood and the right lung contained pneumococcus Type II atypical in pure culture. Lw. doubtless acquired his second infection from the group of patients with the same micro-organism surrounding him.

There have been two instances in which, after one type of organism, namely, pneumococcus Type IV, has been found in the sputum by inoculation of white mice and subsequent identification of the pneumococcus, a different type has been demonstrated in the blood or lung at necropsy. Private G. was admitted to Ward 2, September 27, and pneumococcus Type IV and *B. influenzae* were found in his sputum. He died, October 2. There was acute lobar pneumonia with suppuration of the interstitial tissue of the lung and empyema. The heart's blood, lung and bronchus contained pneumococcus Type II; *B. influenzae* was found in the bronchus. Private Sp. was admitted to Ward 2, September 25. Pneumococcus Type IV was obtained from the sputum. He died, October 3; there was acute bronchopneumonia with multiple clustered foci of suppuration, and pneumococcus Type III and *Staphylococcus aureus* were found in the lung. Even should we assume that pneumococcus Type III in this instance descended into the lungs from the patient's mouth, the case indicates that reinfection of a pneumonic lung with pneumococci is possible.

The foregoing data show that pneumonia of one type does not establish any trustworthy immunity from other types of pneumococci. Patients with one type of pneumococci, notably in the examples cited of Type II, may infect with fatal result patients suffering with or recovering from other types of pneumonic infection. In the absence of streptococcus pneumonia it is essential to maintain in a pneumonia ward precautions that will prevent transmission of infection from one patient to another.

SUMMARY

During the epidemic of influenza that has been studied, one fourth of those in the camp suffered with the disease; 12.1 per cent. of those attacked with influenza developed pneumonia, and 3.8 per cent. died.

Influenza tended to select newly drafted men, and was twice as common in men who had been in the camp less than one month as in those of longer residence. The incidence of pneumonia among newly drafted men was even higher; 62 per cent. of the cases of influenza were in men in camp less than one month; 67.5 per cent. of cases of pneumonia were in men in camp less than a month.

B. influenzae can be demonstrated often in immense number in the nose, throat, or sputum of every patient with influenza, and with few, if any, exceptions in the bronchi of those who have had the purulent bronchitis that follows influenza. The same organism can be found in the throats of some healthy individuals.

Pneumonia follows influenza because the disease renders the air passages susceptible to the invasion of a variety of micro-organisms, among which those commonly found are pneumococci, hemolytic streptococci, and staphylococci.

The profound injury to the air passages produced by influenza is shown by the consequent purulent bronchitis and bronchiolitis preventing collapse of the lung after removal at necropsy, by peribronchial hemorrhage, by dilatation of small bronchi, and ultimately by the formation of multiple bronchiectatic cavities.

Both lobar pneumonia and bronchopneumonia follow influenza, but the disease is somewhat less frequently lobar pneumonia than bronchopneumonia.

Lobar pneumonia following influenza at Camp Pike has been caused in most instances by pneumococci that occur in the mouths of healthy men, namely, by Type IV, 53.6 per cent.; Type III, 7.3 per cent, or Type II atypical, 21.7 per cent., whereas it is seldom caused by Type I, 13.1 per cent., or Type II, 4.3 per cent. Bronchopneumonia has shown similar preponderance of Type IV, 69.8 per cent. It seems probable that Types I and II are much less abundantly distributed among the troops of this camp than in those civil communities where most previous observations have been made.

Among the necropsies that have been performed here, typical lobar pneumonia occurred in about one half of the cases, bronchopneumonia alone in somewhat less than a fourth, and suppurative pneumonia usually superimposed on bronchopneumonia in slightly more than a fourth of the cases.

Three types of suppurative pneumonia occur: (*a*) Localized abscess formation within a patch of pneumonic consolidation, usually in immediate contact with the pleura and accompanied by empyema. Hemolytic streptococci are found at necropsy in the lung, in the bronchi, in the inflamed pleural cavity, and in the heart's blood. (*b*) Suppuration of the interstitial tissue of the lung superimposed on bronchopneumonia or occasionally on lobar pneumonia. The suppurative process extends up to the pleural surface, and there is empyema. Hemolytic streptococci are found in the situations named above (under *a*). (*c*) Multiple foci of suppuration clustered about a medium sized bronchus. Empyema has not been found. *Staphylococcus aureus* has been present in the lesion.

The sequence of events that occurs in many cases of influenza is as follows: *B. influenzae* descends into the bronchi; pneumococci (in this camp usually Type IV) invade the inflamed bronchi, enter the lung, and produce either lobar pneumonia or bronchopneumonia. Hemolytic streptococci may descend and infect the pneumonic lung. It is not improbable that hemolytic streptococci may invade the bronchi previously infected with *B. influenzae* and cause bronchopneumonia in the absence of pneumococci.

When hemolytic streptococci invade the lung either with or without preceding pneumococcus infection, there may be no suppuration of the lung. It is probable that death has occurred before there is opportunity for the formation of abscesses. *Streptococcus hemolyticus* may pass through a pneumonic lung and appear in the heart's blood although there has been no suppuration. It is not improbable that it may pass through the lung and produce empyema, the lung remaining free from actual suppuration. Lobar pneumonia appears to resist suppuration more effectively than bronchopneumonia; but fatal streptococcus infection is common with both.

Infection with hemolytic streptococci may spread as an epidemic through the pneumonia wards of a hospital. A single patient with streptococcus pneumonia is a source of grave danger to every patient in the same ward. Superimposed infection with hemolytic streptococci increases the mortality of pneumonia so that it may reach from 50 to 100 per cent. of all patients with pneumonia.

Streptococcus pneumonia is introduced into a ward by the admission of a patient with the disease, or doubtless by a patient or attendant harboring hemolytic streptococci in the throat. Transmission of infection is favored by overcrowding, by failure to recognize the disease, by imperfect separation of patients by cubicles and other means, and by imperfect aseptic technic of medical officers, nurses and attendants.

Patients suffering with or recovering from pneumonia caused by one type of pneumococcus may be reinfected with another type of pneumococcus, and fatal pneumonia may result. General conditions that facilitate the transmission of streptococci outlined above favor the occurrence of reinfection with pneumococci.

The history of influenza and pneumonia at Camp Funston[1] indicates that epidemics of influenza and consequent pneumonia will follow the present epidemics of influenza when new drafts from isolated rural districts are brought into camps that have been attacked by the disease. There seems little reason to doubt that the incidence of pneumonia and the death rate of that which occurs might be greatly diminished by preventing all overcrowding of new recruits in barracks and by providing hospital facilities in considerable excess of the routine demand.

Hospital epidemics of streptococcus pneumonia will be prevented when medical officers have that dread of the disease—comparable to our dread of puerperal fever—which is inevitable when its characters are accurately understood. To promote a more widespread recognition of its nature, the use of a readily understood designation, such as streptococcus pneumonia, should be encouraged.

Streptococcus pneumonia is a preventable disease: (*a*) The technic of a pneumonia ward must be comparable to that of the best maternity hospitals, with added precautions to prevent patients from disseminating by coughing or other means ejected material containing streptococci, pneumococci or other micro-organisms. (*b*) The throats of all patients with pneumonia should be swabbed before they are admitted to a ward set aside for the treatment of pneumonia in order to determine if they harbor hemolytic streptococci (demonstration of hemolytic streptococcus in the throat does not prove that the lung is invaded). (*c*) Patients with pneumonia harboring hemolytic streptococci should be kept in a separate ward into which none free from these micro-organisms are admitted. (*d*) When streptococcus pneumonia makes its appearance in a pneumonia ward, the ward should be closed to further admissions. It would doubtless be closed if diphtheria or scarlet fever had appeared and the danger from streptococcus pneumonia is greater. (*e*) Necropsies should be performed on every patient dying with pneumonia, and appropriate bacteriologic cultures should be made from the heart's blood and from the lungs as a means of determining the presence or absence of streptococcus pneumonia and to serve as an index of the efficiency of the precautions in force.

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1. Opie, E. L.; Freeman, A. W.; Blake, F. G.; Small, J. C., and Rivers, T. M.: Pneumonia at Camp Funston, J. A. M. A. 72, 108 (Jan. 11) 1919.

FEIGNED AMNESIA AS A DEFENSE REACTION *

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The examination of soldiers under arrest at the office of the provost marshal of Paris has revealed a number of individuals feigning loss of memory for the purpose of escaping punishment. This form of malingering was employed as a last resort when the culprits were without other excuse. The charge under which they were held was in every instance that of being absent from their unit without permission, and in no case was amnesia alleged to escape duty at the front.

It was interesting to note that all of these men were native Americans. None presented any evidence of mental deficiency, the majority being somewhat above the average of intelligence. One was a captain, two were first lieutenants, and the others were privates. Such civil occupations were represented as machinist, newspaper reporter, court stenographer, telegrapher and student.

The condition observed was characterized by an alleged absolute blank in the continuity of memory, corresponding to the period of time during which the individual thought it necessary to be excused from his actions. This period varied according to the astuteness of the soldier. Some deemed it wise to remember nothing of their past life, others limited it to incidents occurring during the past few years, while the majority claimed an amnesia corresponding to the period of their misdemeanor.

A typical statement would be somewhat like this: "The military police picked me up in the street because I had no papers. I do not know how I got to Paris, how long I have been here, or what I have done. The first thing that I remember was this morning."

REPORT OF CASES

The subjoined reports are abstracted from the records:

Case 1.—A private stated that he had arrived in Paris two nights before, he did not know how. He went to a military policeman and gave himself up. He did not know what his organization was or when he enlisted, but he was not drafted. His home was in California, he did not know where. He was not married. He came to France in cold weather, he did not know when. He landed in France, he did not know at what port. He did not know the name of the boat he crossed on; it had one smokestack. He thought he had been a teamster in France. He did not know what he did in civil life. He had been at the front.

The patient denied memory for recent and past events. His attention was good. There was no disorientation nor confusion. He answered questions promptly. He was able to answer problems involving multiplication and division promptly and accurately.

Physical examination was negative.

Case 2.—A private was not sure of his name. He found an envelop in his pocket and he imagined it was addressed to him. This letter was from California. He said that he thought California was in the United States, but he could not say where the United States was. He did not know where his home was or anything about his people. He supposed he had parents because everybody must have them. He did not think that he was married. He felt all right. He did not know his age, length of service in the Army, or length of service in France. He said that up to the time he found himself in the subway in Paris, Oct. 4, 1918, everything was a blank. This recovery of "consciousness," he stated, was due to a fall in the subway. He remembered all events since then perfectly. After he fell in the subway he went to his hotel and the next day reported to the provost marshal.

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* From American Red Cross Military Hospital No. 1.

The patient was well oriented, his attention was excellent, he was well informed about Paris, and he appeared very intelligent. He seemed to realize that his story was very weak.

Case 3.—A captain was charged with having been absent without leave for six weeks; with having been drunk and disorderly; of being in debt to a hotel for 1,500 francs; of brutalizing a woman who was registered at a hotel as his wife; of resisting arrest, and of attempting to break arrest. His identity card said that he was a first lieutenant, but he wore a captain's insignia and probably was a captain.

The patient had no memory of leaving his organization, and did not remember anything that had happened since. The patient stated that he did not know what month it was or why he was under arrest. He answered all questions readily that could not be used against him, but did not remember anything that he did not wish to remember. His attention was excellent, his train of thought well connected, and his intelligence keen.

COMMENT

It was not difficult in the majority of instances to expose the malingering by noting the inconsistency existing in the patient's statements. One man stated that he did not know the name of the boat on which he crossed the ocean, but later he said the boat had been torpedoed recently. When asked how he knew this he said he had read it in the papers. Another individual said that for the past few weeks he had been unable to recall any facts connected with his past life, including the name and address of his relatives. This man when questioned as to when he had last written home replied that he had a nurse write his sister while he was in a hospital. This was written at a time during which he had just claimed that he could not remember the address of his relatives.

The Café de la Paix seemed to hold a peculiar attraction for many of the patients brought up for examination. To such an extent was this true that it made a bright spot in a long day of routine examinations to have a soldier solemnly affirm that the first thing that he remembered for weeks was the military police grasping him by the shoulder in the Café de la Paix. The explanation of this is simple. This popular resort, dear to the heart of the American soldier in France, is situated at the intersection of the grand boulevards of Paris and is therefore the most central point in the city. Around this place the military police drew their net in the search for men absent without leave, and consequently here many of the men examined were arrested.

The mechanism of this reaction is easily understood, provided one has some knowledge of the psychology of the American soldier. It is so easily explained that even the psychanalyst would find it difficult to attribute the condition to repressed sexual complexes. A soldier, tiring of his routine life, leaves his organization without permission, in search of a few days' recreation. Many of them do this without being detected; but some are not so fortunate, and find themselves under arrest and called on to explain their actions. They know that they have no excuse; and having recently read about men losing their memory from "shell shock," they quickly seize on that as a means of escape, feeling that the less they say in their present predicament the better it will be.

The soldier realizes that when he returns home his family may require from him an explanation for his arrest while in the army, and what better excuse can he have than that mysterious and strange malady of shell shock, so well known to his people from the description in the popular literature? This explanation will raise him from the depths of disgrace to a hero's pedestal.

Usually there was a history of only one attack of amnesia; but one man, who was not an epileptic, gave a history of four such gaps in his memory, each developing at a most convenient time and disappearing after he was extricated from his difficulty.

Feigned amnesia is important not so much of itself but because of the possibility of its being confused by the uninitiated with certain forms of true amnesia, such as those seen in hysteria and certain confusional states.

We have seen true amnesia occurring in soldiers in hysteria, psychasthenia, mental confusion resulting from exhaustion, toxic states as the result of alcoholism and other drugs, epilepsy, various other psychoses, following cerebral concussion, and organic brain injuries.

The chief conditions that must be differentiated from feigned amnesia are hysteria and simple confusion from exhaustion. We have not seen hysterical amnesia without other manifestations of hysteria. The men feigning amnesia were alert and keen, and their attention was excellent, in marked contrast to the mental state of the hysteric. When the confusion following exhaustion is marked, there is no question of the diagnosis; but frequently the confusion is slight, and these cases are often difficult to differentiate from feigned amnesia. A careful study of the patient's story of exhaustion, together with his irritability, slight disorientation, and other symptoms of mental and physical exhaustion, form a basis for the differentiation.

A GENUINE CASE

The subjoined report is abstracted from the record of examination of a first lieutenant who was found to be suffering from simple confusion following exhaustion. It is quoted to show the difference between this condition and feigned amnesia:

History.—The patient left the front for Beauvais on twenty-four hours' leave after having been on active service, continuously under shell fire, for two months. He remembered going into a wine shop as soon as he reached Beauvais, and then remembered getting into a large automobile with other officers. He next turned up at A. R. C. M. H. No. 1, having been brought in with some wounded soldiers. He was sent from this hospital to U. S. Camp Hospital No. 4, where he remained for a few days; then he went with some other officers to the Elysée Palace to get his pay check. In some way he became separated from the other officers and disappeared for about a week, to be returned later to U. S. Army Camp Hospital No. 4. In the interval he had been wandering about the front trying to find his old command and finally had been sent to the hospital by a French officer, accompanied by a French corporal. He was then investigated by the provost marshal in response to a request from his commanding officer, who reported that he was absent without permission.

Examination.—There was amnesia of events between his arrival in Beauvais until he found himself in U. S. Army

Camp Hospital No. 4. Memory for events during this time was vague, being similar to that of a dream state. He was irritable and easily startled by sudden and unexpected noise. He was slightly depressed and inclined to be lacrimose. He had a slightly furtive attitude. His judgment was not good. His train of thought was not well connected. There was no paranoid trend, no hallucinations nor delusions. He did not know who his physician was at the hospital. There were tremor of the fingers and tongue, slight photophobia, and conjuctival injection. Other physical findings were negative.

Extract from Conversation.—"Damned if I know what I did in Paris. Those fellows (provost marshal) know, I suppose."

"How did you get your pay check?" "By God, that is why I came to Paris; you said something there."

"My ideas are hazy. The last two or three weeks I was up there I was not all right, I would raise hell with a man for nothing."

CONCLUSIONS

1. Feigned amnesia has assumed a place of importance in psychiatry because of the tendency of many examiners to classify it as amnesia due to hysteria.

2. The condition is a defense reaction to escape punishment. It is not unfamiliar to civil practitioners engaged in medicolegal work.

3. Amnesia, when alleged in industrial circles, may be of similar feigned character, for the purpose of gain. It is encountered in accident litigation, being in this case due to the expectation of compensation.

4. The dissemination of misinformation about "war neuroses" under the title of "shell shock" is to be regretted. The popular idea regarding this condition is erroneous, owing to the premature and inaccurate descriptions published. This has in turn been responsible for a larger incidence of the disease in the army than is justified, and has also enabled men to seize on it as an excuse for misdemeanors.

A NEW NEMATODE INFECTION OF MAN

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In the course of the hookworm survey of increments of troops arriving at Camp Travis, Texas, and of various military units of the Southern Department (Texas, Oklahoma, New Mexico and Arizona) by the Laboratory Car *Metchnikoff*, a nematode ovum, apparently undescribed, has been found in 429 cases among approximately 140,000 soldiers examined. This ovum is the largest ovum of intestinal worms encountered in human stools. Its dimensions average 95 by 40.2 microns, with a ratio of length to diameter of 2.4:1. It is extraordinarily variable in size and proportions, its length ranging from 68 to 133 microns and its diameter from 33 to 43. The ova of *Necator americanus* in our material measured 69 (from 63 to 72) by 38 (from 35 to 43) microns. These are averages of twenty measurements in both species.

This new ovum is characterized by two marked diagnostic features that clearly distinguish it from other nematode ova of man: The first is a broad concavity on one face usually concealed by the position of the ovum when floating on brine, so that it appears only as a flattening on that face. The other feature is the presence of two highly refractive hyaline, bluish green globules flattened asymmetrically at the two poles of the embryo. They are sometimes combined in one large lateral or polar globule, or are broken up into smaller moieties. They are dispersed as development proceeds. The larva partakes of the color of the globules. The egg is a broadly rounded asymmetrical ellipsoid, with clearly defined double contoured eggshell similar to that of the hookworm. In some instances the faintest tinge of brown can be detected in optical sections of the shell. There is sometimes a small irregularity in the contour toward one end on the concave surface suggestive of an operculum.

The eggs at oviposition in fresh stools are in the late morula to coiled larval stages, the latter often in elongated, slender ova. Attempts to hatch the egg in water, boneblack, at air temperatures, in the incubator at blood heat and below, and in human gastric and duodenal fluids have all failed. Cobb[1] was unable to hatch the ova of *Oxyuris vermicularis* in artificial digestive fluids, although he did succeed in securing developing larvae from ova passed through the human digestive tract in a suction capsule. Spasmodic movements in the coiled larvae in the shell have been noted.

The infections are most of them light, only a single ovum being found in many cases. The maximum number detected on one slide by the Kofoid-Barber brine-loop method was twenty-four.

The affinities of the ovum are suggested by its size, proportions and contour. On a partial survey of the literature of nematodes, human and of other mammals, no reference has been found to such hyaline globules. Minute globules of similar physical characteristics appear in some ova of *Oxyuris vermicularis*. The flattening on one face is a family characteristic of the ova of *Oxyuridae*. The size and proportions of this ovum fit about midway into those of the species of *Oxyuris* found in rodents, such as rabbits, rats and mice. We therefore tentatively assign this species to *Oxyuris* as *Oxyuris incognita* sp. nov., pending the discovery of the adult stage. There is a possibility of its being a *Trichostrongylus*, but the ova of the known species of that genus are generally larger and more slender, and have no flattening (except *Trichostrongylus orientalis* Jimbo from man in Japan) and are not known to have globules. This is not the egg of *Trichostrongylus orientalis* in either dimensions or proportions, and that species has no globules (in photomicrographs and descriptions).

No ova of like structure have been found by us on examination of feces of horses, mules, cattle, hogs, goats, or culture rats and mice from Texas.

The infected soldiers were examined for the most part within two or three weeks after admission from civil life; hence the infection may be attributed to the region of their previous residence. The distribution has been determined on the basis of the place of enlistment of the infected soldiers. In 30,348 examinations made between July 28 and Aug. 21, 1918, there were 361 cases of infection among troops in Camp Travis. These came from forty-eight states of the Union with infections in twenty-two states. The number of men examined, the number of infections, and the percentage of infection in each state from which infected men came are given in the accompanying table.

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[1] Cobb: Proc. Linn. Soc., N. S. Wales, 5, 1890.

The regions from which no infections were detected are the New England states, the Southeastern states, and a group in the Central Northwest.

In Texas the sandy prairies, the eastern timber belt, and especially the eastern and western cross timber countries, narrow belts of sandy soil running south from the Red River through the most densely populated region of the state, are the most heavily infected regions. The percentage of infection in men from counties in these belts ranges from 1 to 11. These are also regions of heavy hookworm infection. This suggests entrance by skin penetration.

Negroes, as in the case with hookworm infections, have a lighter infection (0.9 per cent) than white men (1.5 per cent). Men of foreign birth show infections, but there is no suggestion of importation. No occupational relationship to infection is evident. Men from country and city are both infected, though the greater part of the cases come from the country and smaller towns.

There is a very marked seasonal occurrence in the appearance of the ova. Examinations have been in progress from March to November inclusive, but 409 of the 429 infections were detected between July 28 and September 8, 301 of them in sixty-one of the ninety-two companies of the 165th Depot Brigade, and the remaining 108 in other organizations of Camp Travis. This period of maximum oviposition follows about two months after the maximum use of fresh salads, such as lettuce and radishes, in the usual course of country and town life. The interval is approximately that required for other nematodes, such as hookworm, for reaching sexual maturiy after entering the host. Oviposition is exceedingly irregular. Stools of infected men contain ova rarely. The possibilities of a much larger percentage of infection is suggested by this fact. No cause for cessation of detections of infections is apparent. It is possible that the parasites die or are cast off after maturity, but evidence is lacking. A few cases of infection have been detected throughout the remainder of the year except from December to February, which period has not as yet been covered.

ORIGIN OF INFECTION

State	No. of Men Examined	Infections Number	Infections Per Cent.
Arkansas	156	4	2.6
California	85	2	2.3
Colorado	937	36	4.0
Illinois	654	7	1.1
Iowa	218	5	2.3
Kansas	125	1	0.8
Kentucky	91	1	1.1
Louisiana	155	2	1.3
Maryland	24	1	4.2
Michigan	192	3	1.6
Minnesota	156	2	1.3
Montana	25	1	4.0
New Mexico	947	10	1.1
New York	394	2	0.5
Ohio	188	2	1.1
Oklahoma	2,621	63	2.4
Pennsylvania	299	2	0.7
Texas	21,623	213	1.0
Utah	13	1	7.7
Virginia	22	1	4.5
Washington	24	1	4.2
Wisconsin	84	1	1.2
Totals	29,053	361	1.2

The possibility of chance infections of food and water by ova have been carefully considered. Camp Travis is supplied with nonstored artesian water. Camp sanitation tends to preclude food infection from manure or from rodents. Ova of plant nematodes presumably have no antidigestive ferments. Similar ova to this have not been reported from food plants. The ova change appearance on cooking.

In the premises it seems probable, but not proved till the adult is found, that these ova come from an *Oxyuris* parasitic in but perhaps ill adapted to man, with marked seasonal limitation in oviposition. The variations in proportions and size of ova, and the irregularities of deposition suggest a small adult worm, and possibly a location in the appendix or ducts of the liver. *Oxyuris* is usually a parasite of the cecum in rodents. Appendixes should be examined for this hypothetic parasite. Immunity from vermifuges and enemas tends to confirm this supposition. There is a possibility that the worm is a small one, easily killed by treatment, and perhaps digested before its discharge.

CLINICAL OBSERVATIONS AT CAMP TRAVIS BASE HOSPITAL

Observations were made in forty-seven cases in which unidentified nematode eggs had been found.

In Cases 1 to 6 there were positive findings of eggs in the stools after the patients came to the hospital and before treatment, the eggs disappearing entirely from the stools after one administration of 30 c.c. of a saturated solution of magnesium sulphate.

In Cases 7, 10 and 11, enemas of benzin were given in the strength of 15 minims to the liter. No eggs were found in the stools after the first enema. All were positive before that administration.

In Cases 8 and 9, the benzin enemas were given on three successive days, after which ova were still present in the stools. The patients were then given castor oil, followed by 30 grains of thymol, which in turn was followed by benzin enemas. Ova were still present in the stools after these treatments. The patients were then given 30 c.c. of a saturated solution of Epsom salt, after which the ova were not found.

In Cases 12 to 18, oil of chenopodium was given by the method in use in the government hospitals, that is, magnesium sulphate, 30 c.c., at 4 p. m., followed by a cereal supper, a glass of milk at 6 a. m. the following day, and 0.4 c.c. of oil of chenopodium at 7, 8 and 9 a. m., with magnesium sulphate at 11 a. m. No ova were found in the stools after the treatment.

In Cases 27 to 32, ova were present in the stools on admission to the hospital, but these patients were not treated for four days. They were given a full tray diet, and daily examinations made of the stools. The eggs disappeared in from one to three days. They were then given a vermifuge: three of them thymol, 1 dram in broken doses (three) in emulsion and three oil of chenopodium, 40 minims, in broken doses (three) in emulsion.

In Cases 33 to 38, the patients were put on a vegetable diet, with the prompt disappearance of the ova, and then given a cathartic.

In Cases 39 to 43, the patients were placed on a meat diet with the same result.

In Cases 44, 45 and 46, the patients were given 5 minims of turpentine after a cathartic, although no ova were found in the stool after admission to the hospital.

In Case 47 numerous eggs in the stools were reported before coming to the hospital, but none were found in the stool since. This patient was given first a plain enema, and on the following day a soapy water enema, and on the next day magnesium sulphate, 30 c.c. of a saturatel solution, after which for two days he was given naphthalene in 7 grain doses, four times daily for two days.

In none of the foregoing cases were any parasites recovered, although repeated examinations of the stools were made in every case both during and after treatment, by washing through a 50 or 80 mesh sieve in many instances.

The blood counts in every case were all well within normal limits except that in Case 9 there was evidence of a secondary anemia; this patient, however, had been in indoor work and gave evidence of a former tuberculous process. In Case 47 the eosinophil count was 5, a little above normal. However, in thirty-two of the forty-seven cases the larger mononuclears showed a slight increase above normal.

Stomach washings in four cases showed no evidence of either ova or parasites.

In none of the cases was there any evidence in the history, symptoms or physical examination pointing to an infection by intestinal parasites.

BERIBERI AT U. S. ARMY BASE HOSPITAL, SAN JUAN, PORTO RICO

LABORATORY INVESTIGATIONS AND CLINICAL MANIFESTATIONS OF SIXTY CASES

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SAN JUAN, PORTO RICO

When cases of polyneuritis began to come into the base hospital at San Juan, from Camp Las Casas, Porto Rico, it was a serious question to decide whether they were those due to dietary deficiency or the result of specific infections, as we had just passed through a serious epidemic of influenza; but after a careful study of the clinical manifestations and complete laboratory reports, it was quite evident to all those who followed the investigations that we were dealing with beriberi, as seen in the Orient. This is the first time, as far as we have been able to determine, that beriberi has been diagnosed as such, in the island of Porto Rico.

The sanitary inspector of the camp was asked to secure and furnish us with a complete detailed report of the diet of the 373d Regiment, from which regiment we were getting the majority of our cases.

The investigation and report of the food used by Company A, Company B, Company C and Headquarters Company of the 373d Regiment, revealed that:

A. Polished rice was a staple article of food for the foregoing companies during the months of September, October and November, 1918.

B. It was served on an average of two meals a day during that period.

C. While the ration was well balanced, there was a deficiency in fresh vegetables due to local conditions.

D. The only vegetables served in large quantities were potatoes and the different varieties of beans.

E. A large amount of canned meats and canned vegetables were used, especially by Company B of the 373d Regiment, which company furnished a majority of the beriberi cases.

On questioning the patients suffering from beriberi, it was learned that those affected were rice eaters and consumed their full rice component of the daily ration, 3.3 pounds a week. Most of them did not eat their meat ration, and those who did eat meat ate sparingly of it.

The following extract from the Section of Tropical Medicine and Hygiene on the Seventeenth International Medical Congress is quoted:

> The section is of the opinion that beriberi among natives who live principally on rice is brought about by the continued and too exclusive use of rice, submitted to a too complete milling, which removes the cortical and subcortical layers of the grain.

LABORATORY INVESTIGATIONS

1. *Blood.*—The average percentage of hemoglobin in forty-seven patients suffering from beriberi or polyneuritis was 72.64.

The differential count in twelve cases showed an average in polymorphonuclears of 45.83 per cent. and in small mononuclears of 38.75 per cent.

2. *Urine.*—The examination of urine in thirty-nine patients disclosed no albumin. Of this examination 38.46 per cent. disclosed hyaline casts and 15.38 per cent. hyaline and granular casts.

3. *Feces.*—Of these examinations, 90.47 per cent. revealed uncinaria ova, in a few instances associated with other parasites.

4. *Swabs.*—In swabs from the throats and noses of thirteen patients inoculated in proper mediums, nothing important was detected.

5. *Spinal fluid.*—In Case 12 (Reg. No. 5861) the spinal fluid was clear and showed 3 white cells, 14 red cells and 3 cells undetermined to the cubic centimeter.

6. *Necropsy.*—The examination of L. M. (Reg. No. 5937) resulted in these findings:

> The body was well developed. Rigor mortis was fairly well marked. There was edema of the lower extremities, especially of the ankles. The face was cyanotic, with a large amount of foamy secretion coming from the mouth and nose. Hypostatic congestion was well defined. When the thorax was opened, fluid blood of dark color escaped through the injured vessels with ease. Considerable edema was noticed on both lungs. On section the lungs showed signs of edema. The pleural cavities of both sides contained a moderate amount of fluid. The pericardium contained about 2 ounces of fluid. The heart was large, especially the right heart, where there was considerable thinning of the walls, with very marked dilatation. The thoracic vessels were normal. The diaphragm was well developed. The liver was somewhat enlarged but of normal appearance and consistency. Section did not show any internal macroscopic change. The pancreas was normal. The stomach and intestines were normal. No parasites were found in the ileum. The spleen was somewhat diminished in size, but did not show any macroscopic change. The omentum was rather reduced in size. The kidneys showed some degree of congestion. No macroscopic change could be found in the brain, meninges and upper portion of cord. The cerebrospinal fluid was clear. The penis had a long prepuce. The scrotum was edematous.

7. *Cultures.*—Cultures made from the heart and lungs at postmortem were negative.

8. *Microscopic examination.*—Preliminary microscopic examination of the spleen, heart, kidneys and liver sustained the macroscopic appearance.

CLINICAL MANIFESTATIONS AS FOUND ON EXAMINATION OF SIXTY CASES OF POLYNEURITIS

Symptoms began in almost every case with a numbness over the legs, usually over the shins first and gradually spreading over the calves and upward to the knees, over the thighs and then to the abdomen between the umbilicus and symphysis pubis. In some cases it also affected the upper extremities, usually the finger tips, and extended upward, to the hands, forearms and in a few cases, to the arms.

TABLE 1.—FINDINGS IN POLYNEURITIS CASES.

1. Legs, only	22
2. Legs and thighs	6
3. Legs, thighs and abdominal wall	6
4. Legs, thighs, abdominal wall and hands	3
5. Legs, thighs, abdominal wall, hands and forearms	9
6. Legs and abdomen	3
7. Legs, hand and forearms	6
8. Legs, thighs, hands and forearms	3
9. Legs, *abdominal wall, hands* and forearms	1
One complicated with cholecystitis and influenza when admitted.	
Two complicated with malaria.	
Prickling formication	9
Numbness	47
Edema, ankles and shins	34
Edema, general	2
Tenderness and pain:	
Calves	60
Peroneal	40
Adductors of thighs	12
Quadriceps of thighs:	
Lower half	14
Entire	15
Hamstrings:	
Lower half	8
Entire	14
Abdominal wall	13
Dorsum of feet	5
Thenar eminences	6
Hands	18
Forearms	12
Arms	5
Patellar reflex absent	26
Patellar reflex diminished	26
Achilles reflex absent	18
Romberg positive	46
Incoordination shown in some method	48
Ataxic gait	11
Simulating ataxic	11
Not ataxic but abnormal	20
Atrophy:	
Calf muscles	4
Thighs	2
Anesthesia varying in degree:	
Shins	33
Legs, other than shins	36
Thighs	5
Abdominal wall	6
Hands	3
Forearms	2
Feet	9
Gastric symptoms	7
Anorexia	4
Fever, slight and at onset only	11
Cardiac symptoms	12
Dyspnea, slight	6
Hyperesthesia:	
Legs	5
Thighs	2
Arms	2
Had influenza:	
Last two months	17
Last six months (previous to the last two months)	5
Doubtful	4
Not influenza	36

Pain was noticed in every case in the calf muscles, and in nearly every case was first noticed in this area. The peroneal group was next in order of frequency and time to be affected. Of the thigh muscles, the quadriceps were first and also more severely affected, with the hamstring group next and adductor group last. Intense pain was caused by pressure on these affected muscle groups. There did not seem to be any greater degree of tenderness over the course of the large nerve trunks.

Only about one third of the patients had any pain in the hands, and the tenderness on pressure was not marked, the thenar eminences being most tender. The flexor muscles in the forearms were the most tender in that area.

Edema was noticed to a small degree in thirty-four cases. This was localized in the ankles and over the tibias, but disappeared after a few days in bed. Two patients had general edema, though not very marked, on admission, but this also disappeared after a few days in bed. The urine in these cases was negative to albumin.

Areas of partial anesthesia, in some cases being only a blunted sensibility, were found in over half of the cases. The part most affected was the shins, other parts of the leg together being but slightly more affected than the shins alone. The feet, abdomen and thighs were affected in the order named, with a few areas in hands and forearms. Hyperesthesia was found in nine cases.

Absence of fever was very noticeable; only eleven patients had some slight fever at the onset, which lasted but a few days. Gastric disturbance was still less frequent, only seven cases of nausea, or nausea and vomiting, being recorded, and this at the onset for but a few days. Complete anorexia was reported as beginning symptoms in four cases, and this was improved either when the patient had been admitted or after a few days in the hospital.

Some form of cardiac affection was found in only twelve cases, consisting in tachycardia, enlarged heart, or a murmur. Whether these were complications of the disease or existed previous to the disease cannot now be told.

The patellar reflex was absent in twenty-six cases, diminished in twenty-six and the Romberg phenomenon was present in forty-six cases. Incoordination could be determined in these cases by other means.

Korsakoff's syndrome was absent in every case.

Thirty-three of the patients reported that they had not had influenza in the present epidemic. Seventeen did have, and six had that disease in the epidemic four months before.

Two patients were admitted with attacks of acute dyspnea. Both had general edema, with rapidly progressing edema of the lungs. The heart action was rapid and very feeble; and heart was enlarged downward and to the right and left. Their feet and hands were cold, and gradual increasing cyanosis was present from the time they entered the hospital. Acute distress was most marked, and nothing could give relief. The patients gasped for breath, were intensely restless, and at times were wild with agony. Death occurred in both cases before twenty-four hours in the hospital had elapsed.

All patients began to improve when placed on a high protein diet, and practically no medication was given. The surgical management of the cases consisted in relieving all tension on muscles showing even a slight trace of paralysis. Six patients when received showed a marked degree of equinovalgus. The affected muscles in these cases were put at rest by the application of a light plaster cast extending well on to the toes, holding the foot at right angles to the leg; the cast was removed as soon as the foot drop symptoms disappeared. All but one patient on a highly nitrogenous diet promptly regained normal function of muscles involved. Thirty-two patients still remain in the hospital under treatment.

TABLE 2.—PERIOD OF SYMPTOMS PREVIOUS TO ADMISSION TO HOSPITAL.

Days	*Patients*	*Days*	*Patients*
1	1	14	3
2	1	15	12
5	3	18	2
6	1	20	6
7	2	21	2
8	2	23	2
9	3	28	2
10	5	30	7
11	1	60	2
12	2		

One, unknown, came to the hospital with influenza and developed pneumonia.

Well Born.—Children will never be well born until they are desired by the men and women who are potential parents.—Dawson.

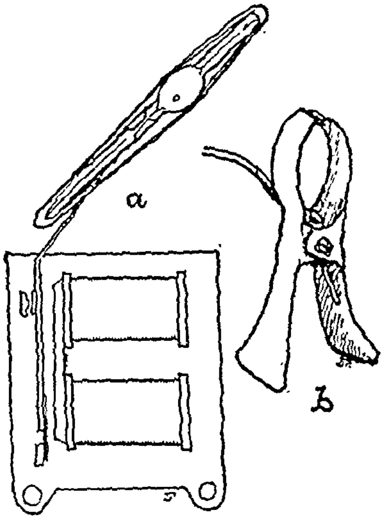
Clinical Notes, Suggestions, and New Instruments

A SIMPLE SHAKER FOR HEMOCYTOMETER PIPETS

Tracy Jackson Putnam, A.B., Boston

Having had occasion recently to make a large number of blood counts, I became impressed not only with the necessity of shaking the pipet thoroughly in order to obtain accurate results, but also with the time and exertion required to shake by hand. I accordingly devised an electric shaker.

The gong and ball of the hammer were removed from an ordinary electric bell, and a small spring clip, such as is used for hanging up negatives, was soldered to the end of the striker arm. The jaws of the clip were bent so as to hold a pipet securely, and it was placed in line with the long axis of the bell, but at an angle of 45 degrees with it, by bending the striker. Such an apparatus may be screwed to the laboratory table and operated by two dry cells with a switch in circuit; or it may be fastened to the cover of a box measuring approximately 5 by 3 by 2 inches, containing two double-cell flashlight batteries, connected in series-multiple by a spring plate at each end. The bell frame should be firmly fastened, as any lost motion ruins the efficiency of the machine.



Simple shaker for hemocytometer pipets: *a*, pipet, enclosed in rubber band, in shaker; *b*, detail of clip.

The filled pipet is kept from leaking by a rubber band, cut from a 3½ inch automobile inner tube, around the ends, which also serves to hold a bit of paper indicating the source of the specimen. It may be kept thus for hours or even days. The contact points and the length of arm of the shaker should be so regulated that the glass bead can be seen to spin in the ampulla. The pipet should be shaken for from three to five minutes, which can meanwhile be profitably spent in putting an extra polish on the counting cell and cover glass.

A trace of grease from a grease pencil, in the gutter of the slide, tends to keep the drop from overflowing.

108 Marlboro Street.

Child Labor Bill and the States.—The National Child Labor Committee calls attention to the fact that the war has left us a legacy of greatly increased employment of children in industry, in the state of Pennsylvania this amounting to 60 per cent. increase among children between 14 and 15 years of age. This probably represents the condition throughout the country. The Pomerene child labor measure which has passed the United States Senate would apply only to children in the manufacturing and mining industries, in which are found but 15 per cent. of working children from 10 to 15 years of age. This leaves much for the states to do to protect the remaining children, none of whom, according to the committee, should be allowed to engage in gainful occupations under the age of 16. To help out, children's scholarships and mothers' pensions to enable boys and girls of needy families to go to school are advocated. Mothers' pensions or compensation laws are in force in thirty-three states, Illinois being the first to enact such a law. These laws help to avoid the hardship resulting from child labor laws on families in which the wages of the children are needed for the family support on account of the death or desertion of the man wage earner, and they protect the children.

Therapeutics

MALARIA

There have always been malarial fevers, under the scourge of which even nations have deteriorated. In more recent times, industrial, engineering, financial and military failures have occurred on account of malarial fever. Especially in evidence was the failure of the French to dig the Panama Canal as the result of this infection. On the other hand, the power of prevention has never been shown so completely as it was on the isthmus under the sanitary administration of General Gorgas.

As general measures of prevention are matters of state and sanitary legislation, they need not be described here.

The most important single measure is the prevention of mosquito bites, even if the majority of such bites are not due to the anopheles mosquito. This means not only the eradication of local mosquito-breeding spots, but also the proper screening of houses, sleeping porches and tents.

It has long been considered that prophylactic doses of quinin would prevent the growth of the germ, if the patient received such an infection; therefore enormous quantities of quinin have been administered, in different parts of the world, especially to soldiers or others visiting malarial districts.

We should recognize that the constant ingestion of such a protoplasmic poison as quinin may not be to the advantage of the individual. It is an appetizer and a stimulant, but at the same time it may inhibit many cellular and glandular activities. No one can doubt that if a person has quinin circulating in his blood, and at that time receives a bite from an infected mosquito, the germs will not grow; but at present the evidence seems to be accumulating that it is better to prevent the bites of the mosquitoes than persistently to take prophylactic doses of quinin.

While the clinical diagnosis of typical malarial fever (chill, fever, headache, often vomiting, sweating and remission) is readily made, without the characteristic symptoms it may be difficult, and many times can be made only by finding the plasmodium in the blood. The peripheral blood may not show the plasmodia in latent malaria. It should also be remembered that malarial organisms may remain harbored in the blood or in some other part of the body for an indefinite period, and perhaps later reinfect the carrier or an anopheles mosquito, and thus pass the infection on to some one else.

In most parts of this country, so-called pernicious malarial fever is rare. Consequently, most infections of malaria are cured by the administration of quinin by the mouth. The adult germs are readily killed by this drug; but it is more difficult to kill the germs in spore. In serious or old infections, the administration of quinin does not seem to prevent the malarial germs from lying dormant in some part of the body, probably in the spleen. Such dormant germs cause recurrent infections.

There are two methods of administering quinin in acute infection. One method is to give the largest dose five or six hours before the expected chill, at which time the germs are mature and therefore most readily killed by the drug. The other method is to give the quinin in smaller doses every two or three hours, night and day, for three days. Whichever method is used, there should be an intermission for the patient to eliminate the quinin and free himself of this poison—and quinin should be considered a poison of the milder type. When quinin is given continuously for three days, as just suggested, it should be stopped for about a week and then repeated. If the quinin is given in larger doses six hours before the expected chill, the amount should be 5, 10 or 15 grains. It is best administered in soluble capsule, and should never be given on an empty stomach, but with milk, malted milk, bouillon and crackers, or tea or coffee and toast, as some simple food should be in the stomach to prevent irritation from the quinin. No more quinin should then be given for twenty-four hours, and then about half the first dose is given on the intermediate day (the amount entirely depending on the severity of the infection and the age of the patient). Then again the larger dose should be given six hours before the time of the next expected chill, whether or not the previous chill occurred. The dose of quinin may then be gradually decreased daily until at the end of a week of freedom from chills a tonic dose of the drug, as 2 grains, combined with 1 grain of iron and $\frac{1}{30}$ grain (0.002 gm.) of arsenic may be given, in capsule, three times a day. This may be given for one or two weeks and then gradually reduced.

If the more intensive treatment is given—administration every two hours—it would be better to use a more soluble form than the sulphate, such as the bisulphate or the hydrochlorid, and the dose should be 2 grains every two hours, or 3 grains if given every three hours. This may be given in solution or in a soluble capsule. It should always be taken with plenty of water. At the end of the three-day period when the quinin is stopped, it is well to give arsenic and iron in some form.

It seems to be always advisable to give a cathartic, if possible, before beginning intensive quinin treatment. The one most frequently given is calomel.

As malarial infection in temperate climates is not a dangerous infection, it is well to consider somewhat the comfort of the patient during treatment. In other words, administration of quinin during the fever period, with a throbbing head and nausea, is unnecessary. When the patient is first seen during the chill, the indication is to get him warm as quickly as possible. Hot drinks, such as hot lemonade or hot tea, should be given, and he should be surrounded with hot water bags. As soon as the fever starts, a more desirable antipyretic than quinin should be given; 0.2 gm. of acetanilid, or 0.75 gm. of acetphenetidin may be given to hasten the stage of perspiration and lower the temperature. As soon as the patient is freely perspiring and the headache has disappeared, the quinin treatment by small doses frequently given may be begun. Or, if the method of larger doses with a longer time between the doses is preferred, some drug that will prevent the unpleasant cinchonism should be coincidently administered. A drug well suited for this purpose is sodium bromid, and 3 grains of it for every grain of quinin sulphate will generally prevent cinchonism.

The value of arsenic in driving plasmodia from hiding, eliminating infection and preventing recurrences seems to be proved; hence its suggested addition to the quinin treatment.

IDIOSYNCRASY TO QUININ

When there is known to be marked idiosyncrasy against quinin, as shown by serious cerebral excitement, serious ear and eye symptoms, and even swelling of the tongue, puffing of the face, and eruption on the skin, some substitute must be used in the treatment of malaria. One of the best substitutes is arsenic in the form of liquor potasii arsenitis (Fowler's solution). Another successful substitute is methylene blue. The dose of arsenic must be large, to the point of causing stomach irritation and some diarrhea. Arsenic would not be advisable if there was nephritis, or even albuminuria. The dose of methylene blue is from 0.1 to 0.2 gm. every four hours, or 0.3 gm. three times a day, after meals. It should be given in capsule and taken with plenty of water.

Fortunately, few persons show such serious idiosyncrasy against quinin as to need these substitutes. A few patients who are especially susceptible to the first dose of quinin tolerate it well after the first twenty-four hours.

PERNICIOUS MALARIAL FEVER

This type of fever, often called congestive chill, means a serious infection, dangerous to life. Very large doses of quinin are necessary, and generally the quinin is best administered intramuscularly, or perhaps intravenously. The clinical course of the disease must be immediately stopped; a second, and certainly a third chill must be prevented.

HEMOGLOBINURIC FEVER

The germ of infection of this blackwater fever has not been found, but is generally more or less closely associated with ordinary malarial plasmodia. It has been thought that the parasite of this disease destroys the parasites of ordinary malaria.

The advisability of giving quinin during this disease is still somewhat in doubt, although some physicians practicing on the isthmus believe that large doses of quinin should not be given during this fever. Quinin may perhaps never be the cause of hemoglobinuria; on the other hand, it has been reported to increase the destruction of blood corpuscles and the loss of blood during hemoglobinuric fever.[1]

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[1] A discussion of this subject, with many references, has been presented by W. O. Ott (J. A. M. A. **67**: 872 [Sept. 16] 1916).

Industrial Morbidity Statistics.—*Public Health Reports*, Aug. 30, 1918, contains a synopsis of a report of a Committee on Industrial Morbidity Statistics of the American Public Health Association, which is to be presented before that body at its meeting in Chicago, Oct. 14-17, 1918. A complete plan for collecting, tabulating and employing these statistics, together with outlines of proposed analytic tables, is presented. It is recommended that the United States Public Health Service be made the clearing house for the collection, analysis and publication of the statistics. The committee consists of Louis I. Dublin, chairman; Carl B. Auel, William A. Hathaway, Dr. George E. Tucker, and Dr. B. S. Warren, secretary.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BIOLOGICALLY REACTIVE FOOD PROTEINS

These products represent the purified and concentrated proteins of the particular food from which they are obtained.

Preparation.—They are prepared from the protein bearing portions of the particular food by extracting fats and lipoids with suitable solvents. The dry residues are then extracted with such solvents as water, dilute alkaline or acid solvents, as may be indicated. The protein is obtained from this solution after neutralization if necessary, either by rapid evaporation of the solvent at low temperature or by concentrating the solution and precipitating the protein by a suitable agent such as alcohol, acetone, etc.

Properties.—In any case the protein is obtained in the form of a dry, finely divided powder which is white or nearly so and wholly or partly soluble in water.

Actions and Uses.—These protein products are used in cases where persons show a peculiar hypersensitiveness or idiosyncrasy toward certain articles of the dietary. Their use is twofold, namely, to establish just what particular food produces the untoward symptoms, and also by their proper application to immunize the patient against the ill effect of this food.

The test for sensitiveness is made by scarifying the skin in such a manner as just to penetrate the outer layer, taking care not to draw blood. The protein is then rubbed into the tissue at this spot either in the form of dry powder or as a solution in sterile water or physiological sodium chloride solution. If desired, a much more dilute solution (1 to 100 or less) of the protein may be injected *intradermally* in doses of one hundredth to two hundredths of a cubic centimeter. Controls with sterile sodium chloride solution should always be made regardless of the method of application employed.

The reaction will appear about the site of inoculation in the form of a distinct urticarial wheal within five minutes to half an hour, and may persist for several hours. The intensity of the reaction will depend somewhat upon the concentration of the protein solution. No systemic effect should be produced.

When the identity of the particular food protein causing the symptoms is thus established, it has been found that the patient may be desensitized by the administration of gradually increased amounts of food containing the offending protein or of the isolated food protein itself. If the isolated food proteins are used, they are best administered mixed with the ordinary foods. The dose at first should not exceed five to ten milligrams given several times a day whenever food is taken. The dose may be increased but should be governed by the appearance of systemic disturbances. The skin reaction is the best indication as to the effect being produced by the dosage given. The administration should be continued until no positive skin reaction is obtained by the same protein which is being administered.

The efficiency of the treatment can be judged by the patient's ability to ingest without ill effect large quantities of the food protein which previously had produced the untoward symptoms.

COW'S MILK ALLERGENS-SQUIBB.—A powder representing all the soluble proteins contained in cow's milk.

Actions and Uses.—See preceding general article on Biologically Reactive Food Proteins.

Dosage.—See preceding general article on Biologically Reactive Food Proteins.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Cow's Milk Allergens-Squibb is prepared: Fresh cow's milk is centrifuged to remove fat and dialyzed to remove lactose and salts. From this solution, the milk proteins are precipitated by saturation of the solution with ammonium sulphate and the salts then removed by filtration and dialysis. The remaining protein solution may now be reduced to dryness by rapid desiccation at a low temperature in vacuo or the proteins may be precipitated by addition of alcohol or acetone and the precipitate washed and air dried. Alternate method: The milk protein solution obtained by removal of fat, lactose and salts as in the first method, is mixed with alcohol or acetone. The precipitate produced is extracted with anhydrous alcohol or acetone and ether.

It is a fine, white, odorless powder, somewhat soluble in water and physiological sodium chloride solution. It is more freely soluble in dilute sodium carbonate or sodium bicarbonate solution.

If 3 Cc. of a solution of cow's milk Allegerns-Squibb in water (1-100) be made alkaline by sodium hydroxide, and a drop or two very dilute cupric sulphate solution added, the whole well mixed and allowed to stand at room temperature for ten minutes the clear fluid above any precipitate which may have formed assumes a violet tinge (biuret reaction).

If to 3 Cc. of a solution of cow's milk Allergens-Squibb in water (1-100) 3 Cc. of glyoxylic acid be added and then 4 to 5 Cc. concentrated sulphuric acid added in such a manner as to make a separate and distinct layer, a violet color develops at the zone of contact (Hopkins-Cole reaction).

Cow's Milk Allergens-Squibb.—Produces specific precipitins in animals.

Cow's Milk Allerpens-Squibb.—Produces specific immunity or anaphylactic reactions in animals.

EGG ALLERGENS-SQUIBB.—A powder representing all the soluble proteins contained in hens' eggs.

Actions and Uses.—See preceding general article on Biologically Reactive Food Proteins.

Dosage.—See preceding general article on Biologically Reactive Food Proteins.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Egg Allergens-Squibb is prepared: The shells are discarded and the whites and yolks collected separately. The proteins of the egg white are extracted by dilute sodium chloride solution. From this solution the proteins are obtained after removal of sodium chloride partly by dialysis, by rapid evaporation in vacuo at low temperature or by pouring the protein solution freed from sodium chloride into ten times its volume of acetone or strong alcohol and dehydrating by washing with absolute alcohol or absolute acetone and absolute ether. The other soluble material of the yolks is removed and from the residue the proteins are extracted with sodium chloride, dilute sodium carbonate, or sodium bicarbonate solution. This protein solution is reduced to dryness by rapid evaporation in vacuo at low temperature or it may be precipitated by pouring the solution into ten times its volume of strong acetone or alcohol. In the latter case, it is further dehydrated by extraction with absolute alcohol, absolute acetone and absolute ether. The dehydrated egg white protein and the protein of egg yolk are mixed in equal proportions.

It is a fine white powder, odorless, somewhat soluble in water, and physiological sodium chloride solution. More freely soluble in dilute sodium carbonate or sodium bicarbonate solution.

If 3 Cc. of a solution of egg allergens-Squibb in water (1-100) be made alkaline by sodium hydroxide, and a drop or two of very dilute cupric sulphate solution added, the whole well mixed and allowed to stand at room temperature for ten minutes, the clear fluid above any precipitate which may have formed assumes a violet tinge (biuret reaction).

If to 3 Cc. of a solution of egg allergens-Squibb in water (1-100) 3 Cc. of glyoxylic acid be added and then 4 to 5 Cc. concentrated sulphuric acid added in such a manner as to make a separate and distinct layer, a violet color develops at the zone of contact (Hopkins-Cole reaction).

Egg Allergens-Squibb.—Produces specific precipitins in animals.

Egg Allergens-Squibb.—Produces specific immunity or anaphylactic reactions in animals.

WHEAT ALLERGENS-SQUIBB.—A powder representing all the soluble proteins contained in wheat.

Actions and Uses.—See preceding general article on Biologically Reactive Food Proteins.

Dosage.—See preceding general article on Biologically Reactive Food Proteins.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Wheat Allergens-Squibb is prepared: Wheat flour is extracted with sodium chloride solution. The clear solution so obtained is saturated with ammonium sulphate. The precipitated proteins are collected and dialyzed to remove inorganic [illegible] tein solution is brought to dryness by any [illegible] or cow's milk allergens-Squibb and egg [illegible] gluten, freed from starch, is extracted with 90 per cent. alcohol to remove gliadin. The gliadin is obtained by pouring a strong alcohol solution of it into absolute alcohol. The precipitate is dehydrated by washing with absolute alcohol and ether. This gliadin is rendered soluble by treatment with dilute sodium carbonate solution. From this solution the soluble gliadin is precipitated by any of the methods described under cow's milk allergens-Squibb and egg allergens-Squibb. The two protein preparations thus obtained are mixed to produce wheat allergens-Squibb.

It is a granular powder, nearly white, odorless, somewhat soluble in water, and physiological sodium chloride solution. More freely soluble in dilute sodium carbonate or sodium bicarbonate solution.

If 3 Cc. of a solution of wheat allergens-Squibb in water (1-100) be made alkaline by sodium hydroxide, and a drop or two of very dilute cupric sulphate solution added, the whole well mixed and allowed to stand at room temperature for ten minutes, the clear fluid above any precipitate which may have formed assumes a violet tinge (biuret reaction).

If to 3 Cc. of a solution of wheat allergens-Squibb in water (1-100) 3 Cc. of glyoxylic acid be added and then 4 to 5 Cc. concentrated sulphuric acid added in such a manner as to make a separate and distinct layer, a violet color develops at the zone of contact (Hopkins-Cole [illegible]

Wheat [illegible]

Wheat [illegible] specific precipitins in animals.
[illegible] specific immunity or anaphylactic reactions in animals.

THE JOURNAL OF THE
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SATURDAY, FEBRUARY 22, 1919

THE LIMITATIONS OF WAR-TIME DIETS

Among large groups of persons, comprising literally millions, the exigencies of war represented by voluntary or compulsory rationing have enforced profound dietary changes. The numerous records of a decrease in body weight among civilian populations of affected districts bear witness to the fact that food restrictions of an unusual sort have undoubtedly been experienced by great numbers. In some cases the enforced situation has doubtless been one merely of marked economy in nutrition; but there is every reason to believe that actual undernutrition has occurred in many localities. Thus the war has given a new significance to the question as to the effect of such dietary conditions on the human organism.

Recently we referred to researches conducted both in Europe and in America with reference to the metabolism attending long restricted diet.[1] The decrease in body weight is accompanied by a lowered basal metabolism clearly indicated by the smaller respiratory exchange. Among the attendant phenomena very carefully studied by Benedict and his collaborators in their Springfield "war-starvation" experiments was the characteristic showing of the heart rate. Despite such pronounced changes induced by intentional undernutrition—or perhaps it should be designated purposeful loss of weight—the general health of the subjects appears to have remained surprisingly good. The losses of protein from the body had been very considerable.

These American observations covered a period of a few weeks. There is now available a report by the German physiologists Zuntz and Loewy[2] of Berlin, who have made observations on the effect of war rations on their own metabolism since the beginning of the war. In accordance with statements from von Müller's clinic in Munich they, too, report early losses of weight amounting to more than 10 per cent. The individual of smaller size evolved in this way by dietary restrictions undoubtedly is able to maintain himself on a lower level of nutrition than that represented for his size in prewar days of abundance. Like Jansen in Munich,[3] the Berlin investigators found that a stationary weight was reached after a time and nitrogen equilibrium became possible with an output of less than 10 gm. of nitrogen a day on the allotted war-time ration. In Jansen's subjects this was encountered with a daily intake of 2,100 calories in persons not exceeding 60 kg. (132 pounds) of body weight. The important rôle of a sufficient intake of calories is well illustrated in the case of Loewy. When his diet was reduced to between 1,500 and 1,800 calories, including from 50 to 60 gm. of protein (equivalent to 7 or 8 gm. of nitrogen) a day, his losses of nitrogen from tissue proteins were considerable, and continued unchecked until an addendum of 200 gm. of butter a day was instituted. Thus the laws of the conservation of energy are immutable—even during the patriotic observance of war-time restrictions.

Although it is evidently possible to keep alive through reduction of weight to a figure at which smaller maintenance rations suffice, the experience of Zuntz and Loewy during periods of work carries a sinister warning. They found that the expenditure of energy in an active effort at marching was decidedly larger than had been observed in earlier days when they were more adequately nourished. The increased consumption of oxygen both during the period of exercise and in the stage of recuperation immediately following was sufficiently striking to indicate the unfavorable effect of the undernutrition on muscular performance. This consequence deserves to be prominently noted, because many of the studies on restricted feeding have been concerned with the problem of maintenance alone without due regard to the economy and ease of work under the conditions investigated. The factor of safety may withstand the depreciating effect of a few days or even weeks; but months of enforced economy are likely to bring it nearer to the vanishing point where even moderate effort begins to involve a severe sacrifice.

THE DIAGNOSIS AND POSSIBLE NATURE OF HEMOSIDEROSIS

In this pathologic condition, to which von Recklinghausen gave the name of *hemochromatosis*, an iron-containing pigment, hemosiderin, is found deposited in various organs and tissues. The real significance of this substance, the chemical *nature* of which is not yet known, has never been discovered. In fact, the fate of *hemosiderin* seems still to be so uncertain that it is regarded most frequently merely as a waste disintegration product of the blood pigment, *hemoglobin*, though by some it has been assumed to play a part or be utilized in the manufacture of new red blood corpuscles.

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[1] The Reduction of Body Weight in War Time, editorial, J. A. M. A. **71**:1580 (Nov. 9) 1918; Food and the Human Machine, **71**:1660 (Nov. 16) 1918.

[2] Zuntz, N., and Loewy, A.: Weitere Untersuchungen über den Einfluss der Kriegskost auf den Stoffwechsel, Biochem. Ztschr. **90**:244, 1918.

[3] Jansen, W. H.: Untersuchungen über Stickstoffbilanz bei kalorienarmer Ernärung, Deutsch. Arch. f. klin. Med. **124**:1, 1917.

Hemosiderosis does not manifest itself in any conspicuous way when such quantities of free hemoglobin as must arise in the usual wear and tear or physiologic hemolysis of blood cells find their way into the circulation. At any rate, hemosiderin is not discoverable in the organism by the usual modes of examination except after certain types of excessive hemolysis. Rous and Oliver[1] interpret the evidence hitherto available as indicating that under most circumstances of blood destruction the spleen and red marrow act as depots for hemosiderin and more than suffice for the purpose; but when the breaking down of red cells is fulminant, or large quantities of blood pigment are furnished the organism for a considerable period, the buffer activity of these organs is overcome, and some little hemosiderin is laid down elsewhere.

It is not easy to secure an "accumulation" of blood pigment in the organism experimentally under normal circumstances. If free hemoglobin is injected, it may be eliminated as such in considerable amounts through the kidneys. More striking results have been obtained by Rous and Oliver through the device of transfusing large quantities of blood at frequent intervals into animals. The foreign corpuscles are disintegrated; and in the midst of the plethora of fragments, considerable siderosis arises. According to researches at the Rockefeller Institute for Medical Research, the depositions are comparable to those of human hemochromatosis. In this disease, and likewise in pernicious anemia, the siderosis is found conspicuous in the liver, kidneys, pancreas and certain other organs; whereas in most cases of sudden hemolysis the pigment deposition occurs in the spleen, bone marrow, and sometimes in certain lymph nodes.

The explanation of the difference in the siderosis, that is, the unlike location of the pigment, in these different diseases has long been a mystery. It seems evident that when the deposition is highly specific, as in hemochromatosis, some tissue factor must be concerned in addition to the hemolytic reactions. Rous and Oliver venture this hypothesis: A liver cirrhosis of unknown origin leads to a failure of the organ to deal adequately with the iron-containing products of normal blood destruction, and the latter accumulate in the organism. Widespread pigmentation results automatically. It at length becomes so great as to cause the death of parenchymal cells, especially in the liver and pancreas, thus leading to secondary connective tissue overgrowth. This, in turn, through injury to the remaining parenchyma, hastens the accumulation of pigmentation. By a repetition of the vicious circle, what is essentially a chronic disease becomes at length a rapid progress down-hill. Diabetes appears in many cases as a result of the pancreatic injury, and soon death results.

The diagnosis of diseases like pernicious anemia and hemochromatosis involving a hemosiderosis has sometimes been extremely difficult, unless a conspicuous siderosis of the skin has developed. Necropsy usually reveals far more siderosis in the internal organs, but it cannot be detected during life. However, Rous[2] has ascertained that in disorders that bring about a siderosis of the kidney there are ordinarily present in the urinary sediment cells containing granules of hemosiderin, and often many free granules as well. The finding has proved useful in the diagnosis of hemochromatosis and will probably be of service in the recognition of pernicious anemia, and possibly some other diseases. Rous points out that urinary siderosis is an indication of a renal condition, not a disease. He suggests that the examination of urinary cells for iron pigment may prove to be a decisive method of determining the presence of hemochromatosis in doubtful clinical instances of cutaneous pigmentation.

SOME DESIRABLE NUTRITIVE QUALITIES OF FISH

The United States Food Administration is making earnest efforts to teach the American people to eat more of the many types of fish that are available, fresh, dried and canned. Although the possible supply of fish is practically unlimited, there are few species at most that have gained any considerable popularity as foods. The tilefish, grayfish, sable-fish, burbot and carp are some of the newer varieties now on the market. There are said to be available nearly seventy kinds of salt water fish and more than thirty fresh water varieties. Yet the average person knows not more than a dozen, and Langworthy[3] further avers that every year the fishermen of the Atlantic coast throw away 10,000,000 pounds of fish that have a higher nutritive value than New England's famous cod. Though our meat consumption is 170 pounds per person per year, we eat on the average only 18 pounds of fish apiece per year. Belgium and France are said to use even less, whereas in England the record mounts to 65 pounds per person.

There are various difficulties to be encountered in any attempted innovations of diet among large groups of people. One is the usual inertia or resistance to change that dietary customs or habits fix in persons. Another is the uncertainty regarding the real physiologic safety of the proposed change—the fear of an impaired nutritive value. Foods acquire deserved or undeserved reputations for wholesomeness or harmfulness in unexplained ways. The older plan of determining food values solely on the basis of chemical analysis in which proteins, fats, carbohydrates and calories per pound were ascertained has been supplanted to some extent by a physiologic mode of experimentation—by tests in which actual feeding experiments are made to give the clue to nutritive qualities. In this way the possession not only of the familiar proximate principles or nutrients but also of those less well defined properties that belong to the vitamins is demonstrable. The most reliable way now available of determining the value of a protein as a foodstuff is by studying the effect of administering it as a component of an otherwise adequate diet. This is the procedure employed so successfully by Osborne, Mendel, McCollum and their co-workers in ascertaining the comparative biologic value of many pure proteins for growth or maintenance. In this way Drummond[4] in England has investigated fish tissues and demonstrated that the coagulable proteins of the muscle tissue of cod, herring and canned salmon have a nutritive value as high as those derived from beef.

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[1] Rous, Peyton, and Oliver, Jean: Experimental Hemochromatosis, J. Exper. Med. 28: 629, 1918.

[2] Rous, Peyton: Urinary Siderosis: Hemosiderin Granules in the Urine as an Aid in the Diagnosis of Pernicious Anemia, Hemochromatosis, and Other Diseases Causing Siderosis of the Kidney, J. Exper. Med. 28: 645, 1918.

[3] Langworthy, C. F.: The Day's Food in War and in Peace, U. S. Food Administration, 1918, p. 58.

The discovery of Osborne and Mendel[5] that cod liver oil contains one of the vitamins—termed fat-soluble A by McCollum—which exerts a beneficial influence on the growth and health of the animal organism directs attention to the fishes from a different angle. The symptoms referable to the lack of this factor in the diet, among which the condition of xerophthalmia has been described, are said to be relatively scarce among fisher families.[6] Drummond has found, in possible explanation of this, that the so-called "fatty" fish, which contain considerable quantities of fat distributed throughout their muscle tissue, may serve as valuable sources of the important dietary essential, the fat-soluble vitamin. The herring is a particularly striking example.

No appreciable amounts of the water-soluble or antineuritic factor were detected in the muscle tissues of the fishes examined. Small amounts, however, were present in extracts prepared from the whole herring, having originated in all probability from the reproductive organs or other glandular organs. This is in accord with recent observations of Osborne and Mendel regarding the absence of any considerable content of the water-soluble vitamin from skeletal muscle, although glandular organs like liver and kidney possess it in abundance.[7] The newly acquired facts about the nutritive properties of fish thus serve to emphasize their food value at a time when beef—a prominent source of our protein supply—and butter or oleo fats—on which many depend for the fat-soluble vitamin—are not so abundant as in peace times.

PHYSICIANS' EXEMPTIONS FOR INCOME TAX

The blanks for the 1918 income tax returns are now being distributed. Each year since the income tax law was passed, the question has arisen: What constitutes the actual income of the doctor? Physicians, more than any other class of professional men, have heretofore confused gross and net income. Owing to professional habits, no dividing line has been drawn between personal and family expenses and expenses necessary for carrying on a practice. Few physicians have kept sufficiently accurate financial records to enable them to separate these two classes of expenditures. Under the income tax law, all actual expenses of carrying on a business may be deducted from the gross income. For the average business man, compilation of such expenditures is easy; for the physician, it is difficult; and in many cases, through ignorance or carelessness, the physician does not credit himself with all the exemptions to which he is entitled. The Internal Revenue Department has ruled that everything that constitutes an actual expense for the transaction of business can be deducted, but that those articles that are purchased as equipment constitute investment and not business expense. Under this ruling, which is eminently fair, the original cost of an automobile used for professional purposes is an investment and cannot be deducted; but the expenses of repairs, upkeep, garage, gasoline, oil, and chauffeur's salary are legitimate expenses that may be deducted. Under this ruling, the following items would be regarded as legitimate deductions: office rent, heating and lighting; office attendants, including office girl or boy, nurse or assistant; office telephone; drugs, dressings, bandages and all material that is to be consumed or expended in the treatment of patients, but not instruments, appliances, office furniture, etc., that are purchased for permanent equipment. Medical journals are a current expense and the subscription price may be deducted, but books are purchased as a permanent addition to one's library and are an investment, the price of which cannot be deducted. Dues in medical societies and organizations, and expenses in attending professional meetings, are legitimate deductions. This fact is understood by few physicians. All the expenses of keeping up and operating an automobile or of maintaining horses, carriages, sleighs, etc., that are used solely for professional purposes may be deducted, but not the original cost of these articles. If an automobile, a team of horses or a carriage is used partly for professional purposes and partly for personal and social use, then the expenses of upkeep should be prorated.

Regarding home expenses, if a physician's office is located in his house and if the house servant devotes any amount of time to assisting the doctor in his work, as office attendant, a proportionate amount of the servant's wages may be deducted. A proportionate amount of rent, heat and light may also be deducted. The cost of a house telephone may be prorated in proportion to the amount of professional and personal service. Depreciation on automobile, office furniture and equipment and other property necessary for carrying on professional work may also be deducted, provided the amount charged off for depreciation in any one year does not exceed the original cost of the article divided by the number of years in which it may be used. For instance, if an automobile cost $4,000 and is used eight years, *no more* than $500 a year depreciation can be charged off.

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[4] Drummond, J. C.: The Nutritive Value of Certain Fish, J. Physiol. 52:95, 1918.

[5] Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. 17:401, 1914.

[6] Mori: Jahrb. f. Kinderh. 59:175, 1904.

[7] Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, J. Biol. Chem. 32:309, 1917; II, ibid. 34:17, 1918.

The general principle underlying the income tax law is that each person should pay a tax on his actual personal income for the year, that is, what is left to him for the use of himself and family after deducting all the legitimate expenses of carrying on his business. Physicians heretofore have not availed themselves of exemptions to which they were entitled and have probably, in the majority of instances, paid taxes on a larger sum than their actual net income. Careful study of the instructions, accurate bookkeeping, and care in making up the returns will result in a considerable saving, which is perfectly legitimate and fair under the law.

THE OCCURRENCE OF PRECURSORS OF METHYL ALCOHOL IN NATURAL FOODS

It is not generally known that methyl alcohol, in what might be termed the potential form of methyl esters and methyl ether, is widely distributed in plant products that enter into the dietary of man. Thus the juices of many fruits contain such compounds; and when they are fermented, methyl alcohol may be liberated to the extent of 1 per cent. of the entire alcohol content formed. The reaction is not associated with the fermentation of the sugars present, but is connected with changes in the residual plant tissues from which the juices are obtained. The so-called pectin substances seem to be the mother substance. Therefore, when fermented fruits are distilled to produce such beverages as brandy, small, yet detectable quantities of methyl alcohol pass into the distillate along with the ethyl alcohol that forms the essential active ingredient of such distilled liquors.

Despite the fact that the pectinous parts of many edible plant forms—green vegetables, fruits and tubers—readily yield small quantities of methyl alcohol, everyday experience shows that these are no menace to the welfare of the body. Nevertheless the traces of alcohol thus ingested are not burned up in the human organism completely. Von Fellenberg,[1] of the Swiss Department of Health, has accordingly been able to demonstrate an output of methyl alcohol, in minute yet measurable traces, varying with the nature of the diet. The range was from inappreciable quantities, when pectin-free diets were consumed, to seven milligrams *or more* a day during a regimen including fruits. The intake was estimated at several hundred milligrams in the corresponding instances.

These seemingly insignificant figures indicating an almost complete destruction of the methyl alcohol from food sources would call for little comment were not further possibilities of latent danger suggested by the use of the distillates, such as the fruit brandies, containing both ethyl and methyl alcohol. A clinician of large experience with diseases of the eye has observed numerous cases of disturbances of vision in those parts of Switzerland in which fruit brandies, containing methyl alcohol as already indicated, are freely consumed.[1] The patients afflicted with retinitis or retrobulbar neuritis were commonly addicted to the use of these strong alcoholic beverages, rather than to wine or beer. It is scarcely justifiable to associate cause and effect on such meager and indirect evidence. Nevertheless the peculiar incidence of serious eye defects in the case of drinkers of *spirits known* to contain methyl *alcohol* derived from the sources of manufacture gives occasion for reflections on this subject.

Current Comment

A GOOD STYPTIC?

The control of hemorrhage frequently offers a problem of serious moment to the practitioner. The methods recommended and employed are diverse. Ordinary bleeding has a strong tendency to stop spontaneously with the formation of a clot, so that the benefit attributed to a drug that has been used as a hemostatic cannot easily be evaluated. As is the case with the user of popular "patent medicines," when return to normal conditions ensues, the credit is all too often given to the product employed rather than to physiologic functions that proceed despite the selected treatment. Evidence of this current confusion of cause and effect in relation to local hemostatics has been furnished in considerable detail by Hanzlik[1] of the Western Reserve University School of Medicine, Cleveland. He has tested the efficiency of reputed styptics under conditions of experimentation whereby the degree of control of superficial hemorrhage could be measured with accuracy. As a result it is stated in general that the local application of vasoconstrictor and astringent agents diminishes or arrests local hemorrhage, while vasodilator and irritating agents (without astringent action) increase local bleeding. The value of the newer thromboplastic agents of the kephalin or tissue extract type is considered as still uncertain. Epinephrin remains as a most efficient and desirable hemostatic agent. Its action is temporary, so that it should not be relied on for permanent hemostasis. Tyramin and pituitary extract also have given a good account of themselves, and unlike epinephrin they do not increase the bleeding later. The astringents as a class have proved variably effective, ferric chlorid and tannin standing highest in the list. The popular alum has been "disappointing," to quote Hanzlik. The vaunted cotarnin salts (stypticin and styptol), antipyrin and emetin were found to increase bleeding on local application. When systemic administration was employed, the effects on bleeding were usually parallel to the changes in blood pressure. Hawkins, investigating a number of styptics more than three quarters of a century ago, concluded:

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[1] Von Fellenberg, T.: Ueber den Nachweis und die Bestimmung des Methylalkohols, sein Vorkommen in den verschiedenen Nahrungsmitteln und das Verhalten der methylalkoholhaltigen Nahrungsmittel im Organismus, Biochem. Ztschr. 85: 45, 1918.

[1] Hanzlik, P. J.: The Effects of Various Agents on Superficial Hemorrhage and the Efficiency of Local Hemostatics, J. Pharmacol. 12: 71, 1918; The Effects of Various Systemic Agents on Superficial Hemorrhage, ibid., p. 119.

> If, then, pressure for a few minutes on a wounded artery can permanently prevent hemorrhage, when that pressure is made with compresses dipped in various fluids, which neither produce contraction of artery nor facilitate coagulation, we are justified in concluding that if styptics are employed the cessation of the hemorrhage is to be ascribed principally, if not entirely, to the pressure or at all events in a minor degree to the action of the styptic.

The work of Hanzlik would indicate that our progress during the past century in this particular field has not been phenomenal or startling.

BACTERIA AND AMINO-ACIDS

In recent years the science of bacteriology has made noteworthy advances in the domain of the metabolism of the micro-organisms. It has developed that in many respects these low forms of life exhibit in their nutritive behaviors many resemblances to the higher animals which have been studied longer from the physiologic standpoint. Only a few years ago it was still believed that proteins undergo only slight digestive alterations prior to their absorption, whereas today it is generally accepted that the disintegration of these nitrogenous substances proceeds profoundly so that they leave the alimentary canal for the most part in the form of amino-acids. Protein metabolism in animals thus starts with these relatively simple products. Rettger and his collaborators at Yale University have demonstrated that native proteins like those of meat and egg are attacked only with difficulty by many types of bacteria. A preliminary cleavage of the protein molecule seems to be essential to the utilization of the nitrogenous fragments. More recently Robinson and Rettger[1] have furnished the added information that bacteria do not require proteins, even in minute quantities, to carry on their normal cultural development, but obtain their sustenance from less complex substances, as, for example, the amino-acids and perhaps some of the simpler polypeptids. The importance of this finding is more far reaching than appears on the surface. It suggests the possibility of accomplishing satisfactorily that which has been desired since the early days of bacteriology, namely, the growth of bacteria on synthetic mediums of known composition. Peptone — made in Germany — and indefinite infusions of complex character have all too long served as the sole mediums for culture work. It is a decided advantage to start with controllable and better defined compounds in the practical growth of bacteria and study of their products. These newe indications, together with the epoch-making recen contributions on the rôle of the hydrogen-ion concentration, and perhaps the suggestion of a part played by vitamins in bacterial growth, should help to pave the way for more rational procedures in enormously important fields of bacteriologic practice.

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[1] Robinson, H. C., and Rettger, L. F.: The Growth of Bacteria in Protein-Free Enzyme and Acid Digestion Products, J. Bacteriol. 3: 209, 1918.

THE RESULT IN OHIO

In The Journal, last week,[1] attention was called to the position taken by the legislative committee of the Ohio State Medical Association on the bill exempting Christian scientists from the provisions of the medical practice act. It was pointed out that the medical profession of Ohio had done its full duty in showing the dangers to public health involved in the passage of the bill, and that the responsibility rested where it belonged, on the lay members of the legislature. The prompt reaction of these members to this definite placing of responsibility is shown by the defeat of the bill in the house last week by the decisive vote of eighty-three to twenty-two. No possible suspicion of self-interest can be attributed to the physicians, either as members of the state legislature or as representatives of the state association, who took such a position. The bill was defeated because the overwhelming majority of the members of the legislature were convinced that its passage was not in the interest of the public. It is safe to say that the influence and standing of the Ohio State Medical Society in the eyes of the state legislature and the public are far better than would have been the case if its members had participated aggressively in political activities against the measure.

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[1] Ohio Finds a Better Way, Current Comment, J. A. M. A. 72: 497 (Feb. 15) 1918.

Open Air Classes.—Feb. 1, 1917, the New York City Department of Health officially took charge of the fresh air classes in the public schools. At that time there were eighty-four classes. According to *School Health News*, November, 1918, there are now 102, and failure to increase the number still further is due to the lack of available rooms, though the demand for additional classes is great. Types of children admitted to the classes comprise children exposed to tuberculosis at home, or in whose families there have been recent deaths from this disease; arrested or cured children; those suffering from malnutrition; those who become tired easily or show languor or fatigue before the end of the day; those suffering from nervous diseases, except chorea; those frequently absent on account of cold, bronchitis, etc.; those suffering from cardiac disease, who are recommended by their physicians as being proper for these classes. The class rooms are situated outdoors in parks, on ferry boats, on the roofs of schoolbuildings, or in rooms in schoolbuildings having specially arranged windows. These children are all fed at least once a day, and some have an extra luncheon morning and afternoon. The results show that most of them gain in weight, some improve in their scholarship, most of them are able to advance in their regular grades, and the general health improves.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending February 14, the Medical Corps contained 22,305 officers, a decrease from the previous week of 516. The Medical Reserve Corps contained 626 officers. The total number of medical officers discharged since the beginning of the war is 11,315.

Distinguished Service Awards

MARK M. DUFFY, Lieut., M. C., U. S. Army, 124th Field Artillery, Danville, Ill. For extraordinary heroism in action near Romagne, France, Nov. 1, 1918. Lieutenant Duffy displayed exceptional bravery in caring for the wounded and directing their evacuation under heavy shell fire. During the action he went under concentrated fire and rescued several wounded men.

ALFRED M. BERGSTEIN, Lieut., M. C., U. S. Army, 18th Infantry, Pottsville, Pa. For extraordinary heroism in action near Exermont, France, Oct. 8, 1918. Under heavy shell fire, Lieutenant Bergstein cared for the wounded although he had been severely wounded and was suffering great pain. He refused to be evacuated until all the wounded had been treated.

HIRAM E. ROSS, Major, M. C., U. S. Army, 18th Infantry, Danville, Ill. For extraordinary heroism in action near Villers-Tournelle, France, May 3-4, 1918. While under heavy bombardment, and working in an area saturated with gas, Major Ross showed extreme gallantry and efficiency, in caring for the more dangerously wounded, removing his mask at times during the attack to better ascertain the extent of the wounded. It was, while thus acting that he was severely gassed.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Ashland—Owens, A. H. (C.)
Fairfax—Morgan, J. C. (L.)
Gordo—Shackleford, W. L. (L.)
Huntsville—Brooks, O. J. (C.)
Ishkooda—Chandler, J. R. (L.)
Mobile—Beck, J. E. (L.)
Phill Campbell—Ford, L. H. (L.)

ARKANSAS

Ozark—Blackburn, E. W. (L.)
Ratcliff—Harkins, R. A. (L.)
Walker—Edrington, D. (L.)
Wilmot—Crandall, M. C. (L.)

CALIFORNIA

Los Angeles—Colloran, J. E. (C.)
Modesto—Clark, I. J. (L.)
  Robertson, J. C. (M.)
Sacramento—Simmons, S. E. (C.)
San Francisco—Pruett, H. J. (C.)
San Jose—Hablutzel, C. E. (C.)
Sunnyvale—Hall, G. P. (L.)

COLORADO

Denver—Gengenbach, F. P. (C.)

CONNECTICUT

Hartford—Brayton, H. W. (L.)
  Lawton, F. L. (C.)
New Canan—O'Shaughnessy, E. J. (L.)
Putnam—Perry, E. F. (L.)

DELAWARE

Millsboro—Dodd, H. H. (L.)

DISTRICT OF COLUMBIA

Washington—Henning, S. C. (C.)
  Neill, T. E. (M.)
  Neuman, L. (L.)

FLORIDA

Green Cave Springs—Scraggs, S. A., Jr. (L.)
Jacksonville—Gammon, J. E. (C.)
Middleburg—Copp, F. A. (L.)
Orlando—Swift, M. B. (M.)
Pensacola—Kennedy, S. R. M. (C.)
West Tampa—Garcia, P. M. (L.)

GEORGIA

Atlanta—Ayer, G. D. (C.)
Brunswick—Greer, C. B. (L.)
Fitzgerald—Ware, R. M. (C.)
Lincolnton—Sturkey, E. L. (L.)
Lumpkin—Lynch, C. S. (L.)
Middleton—Daniel, H. M. (L.)
Morven—Meadows, C. B. (L.)
Screven—Tyre, J. L. (L.)

IDAHO

Idaho Falls—Blevins, D. L. (C.)

ILLINOIS

Belleville—Bechtold, A. F. (C.)
Chicago—Cubbins, W. R. (M.)
  Doering, E. J. (L. C.)
  Ellison, G. (C.)
  Hanchett, R. C. (L.)
  Hopkins, L. A. (L.)
  Napiantek, W. D. (L.)
  Perry, E. B. (L.)
  Ridion, J. (M.)
  Robinson, R. D. (L.)
  Scholter, E. A. W. (L.)
  Seyl, H. H. (L.)
  Sidwell, C. E. (L.)
  Smith, F. A. (L.)
  Stulik, C. K. (L.)
  Weis, A. H. (C.)
De Kalb—Wright, H. G. (C.)
Effingham—Damron, E. L. (C.)
Middletown — McPherson, C. H. (L.)
Moline—Beam, H. A. (C.)
Peoria—Page, T. H. (C.)
Rock Island—Sala, S. M. (C.)
Seymour—Hartrick, L. E. (L.)

INDIANA

Arcadia—Thayer, J. O. (L.)
Bluffton—Dickason, F. M. (L.)
Center Point — Rentschler, L. C. (L).
Gary—Yarrington, C. W. (C.)
Huntingburg—Bretz, W. D. (L.)
Indianapolis—Given, W. S. (L.)
  Johnson, W. F. (L.)
Lawrence—Ratliff, L. H. (L.)
Logansport—Terflinger, F. W. (C.)
Morristown—Wiltshire, R. A. (C.)
New Castle—MacDonald, H. W. (L.)
New Town—Stanfield, W. V. (C.)
Riley—Brunker, H. V. (L.)
Tynor—Thompson, A. A. (L.)
West Point—Rowland, C. L. (C.)
Winslow—DeTar, G. B. (L.)
Yorktown—Downing, J. F. (L.)

-IOWA

Ames—Dyer, B. G. (C.)
Avoco—Spaulding, G. A. (C.)
Breda—Bookhart, E. W. (C.)
Cedar Rapids — Stansbury, J. E. (L.)
Farmington—Mott, W. H. (L.)
Nichols—Muench, V. O. (L.)
Roland—Snyder, J. A. (L.)
Walcott—Shafer, L. E. (L.)
Waterloo—Sage, F. C. (C.)

KANSAS

Moline—Shaffer, C. E. (C.)
Simpson—Jennings, G. (L.)
Topeka—Bowen, W. F. (C.)

KENTUCKY

Arlington—Dunn, J. F. (L.)
Carrollton—North, E. A. (L.)
Jackson—Swango, O. H. (L.)
Louisville—Dyer, J. W. (L.)
  Holmes, B. L. (C.)
  Houck, I. T. (C.
Madisonville—Sory, J. D. (M.)

LOUISIANA

Baton Rouge—McVea, C. (C.)
Blanchard—Doles, H. P. (L.)
Marion—Wheelis, A. B. (L.)
New Orleans—Smith, J. W. A. (L.)
Shreveport—Smith, W. W. (L.)
Slidell—Polk, J. F. (L.)
White Castle—Deans, F. R. (L.)

MAINE

Augusta—McKay, R. L. (L.)
Brunswick—Whittier, F. N. (C.)

MARYLAND

Baltimore—Silberman, D. (L.)
Princess Anne—Lankford, H. M. (C.)

MASSACHUSETTS

Boston—Derby, G. S. (L. C.)
  Devenny, J. H. (L.)
Brockton—McNamara, J. J. (C.)
Cambridge—Darling, E. A. (M.)
Fall River—LeBoue, J. S. (C.)
Holyoke—Lynch, H. E. (L.)
Kingston—Holmes, A. B. (L.)
Lawrence—Bacon, J. P. A. (L.)
Springfield—Merritt, V. S. (C.)
Winchester—Dennett, D. C. (C.)

MICHIGAN

Comstock Park—Boet, F. A. (C.)
Highland Park—Morse, P. F. (L.)
Portland—Bradfield, J. D. (L.)
Ypsilanti—Post, H. I. (L.)

MINNESOTA

Jordan—Phillips, W. H. (L.)
Milaca—Bacon, H. P. (C.)
Minneapolis — Scheldrup, N. H. (C.)
  Stomel, J. L. (L.)
Rochester—Masson, J. C. (M.)
Winona—Robbins, C. P. (C.)

MISSISSIPPI

Boyle—Shivers, E. E. (L.)
Fearn Springs—Haggard, R. A. (L.)
Fitchburg—Kearney, J. H. (L.)
Greenwood—Austin, B. D. (C.)
Hernando—Brevard, L. H. (L.)
Ruleville—Burchfield, B. E. (L.)
Saucier—Hopper, H. P. (L.)

MISSOURI

Fruitland—Poe, C. A. (L.)
Hartsburg—Megee, C. P. (L.)
Ironton—Gay, R. W. (C.)
Kansas City—Hearst, A. L. (L.)
  Meade, R. H. (M.)
  Middleton, J. (C.)
  Parmenter, C. G. (L.)
  Ruhl, I. E. (C.)
St. Louis—Althaus, C. J. (L.)
  Baerens, O. F. (C.)
  Gettinger, A. J. (L.)
  Hughes, M. R. (C.)
  Say, W. J. (C.)
  Thurman, J. L. (L.)
Washington—Muench, O. L. (C.)
Windsor—Blackmore, T. A. (C.)
Winfield—Hardesty, J. F. (C.)

MONTANA

Great Falls—Dolan, A. N. J. (C.)
Lewistown—Davis, F. C. (C.)

NEBRASKA

Columbus—Evans, W. S. (C.)
Carleton—Westerhoff, J. G. W. (C.)
Fairmont—Ashby, A. A. (L.)
Geneva—Hickman, J. C. (L.)
Nemaha—Kelly, P. D. (L.)

NEVADA

Las Vegas—Hewetson, H. L. (L.)

NEW HAMPSHIRE

Bennington—Tibbetts, G. D. (C.)
Concord—Coates, E. W. (L.)
Groveton—Hight, C. E. (L.)
Manchester—Burpee, B. P. (C.)
Nashua—McLaughlin, P. J. (C.)

NEW JERSEY

Atlantic City—Thigpen, H. G. (L.)
Branchville—Riddel, H. E. (C.)
Jersey City—Mount, E. M. (L.)
Newark—Eagleton, W. P. (M.)
  Fasano, G. (L.)
  Zehnder, A. C. (C.)
Riverton—Mills, C. S. (L.)

NEW MEXICO

Roswell—Fall, H. V. (L.)

NEW YORK

Albany—MacFarlane, A. (M.)
Binghamton—Sanford, L. E. (L.)
Brooklyn—Cardozo, A. L. (C.)
  Dederick, A. S. (L.)
  Faske, L. (L.)
  Holzberger, J. C., Jr. (L.)
  Reed, F. G. (C.)
Davenport—Craig, T. L. (L.)
Gainesville—Skiff, G. S. (M.)
New York—Armstrong, A. S. (C.)
  Baum, S. (L.)
  Fiske, J. P. (M.)
  Kahn, M. H. (L.)
  McTiernan, J. M. (L.)
  Pellini, E. J. (L.)
  Rice, F. W. (C.)
  Subkis, J. (C.)
  Van Duzee, B. F. (L.)
  Wheeler, G. W. (L.)
Ogdensburg — Hutchings, R. H. (M.)
Oyster Bay—Gibbons, R. V. (C.)
Rochester—Carpenter, F. M. (L.)
Syracuse—Reifenstein, E. C. (C.)
Verona—George, J. D. (C.)
Waverly—Smith, A. J. (L.)

NORTH CAROLINA

Belmont—Hall, P. B. (L.)
Elizabethtown — Bullard, G. F. (L.)
Hickory—Menzies, H. C. (C.)

NORTH DAKOTA

Grand Forks—Dean, A. (L.)
Hettinger—Voss, C. (L.)

OHIO

Bellbrook—Vandeman, A. N. (L.)
Cleveland—Brooks, E. R. (C.)
  Fowler, H. D. (L.)
  Verovitz, C. H. (L.)
Columbus—Evans, T. A. (C.)
Custar—Biggs, I. L. (C.)
Dover—Marquand, B. A. (L.)
East Liverpool—Andrews, O. P. (L.)
Girard—Parillo, G. A. (L.)
Marion—Mattox, S. W. (L.)
Maumee—Clark, G. W. (L.)
North Star—Hartzell, J. D. (L.)
Payne—Evans, K. C. (L.)
Quincy—Curl, A. M. (L.)
Reading—Carr, A. H. (L.)
Strasburg—Bainter, G. F. (L.)
Tiffin—Hendershott, R. R. (C.)
  Porter, E. H. (C.)
  Williard, G. W. (C.)
Urbana—Houser, D. C. (C.)
Youngstown — Hamilton, J. K. (L.)
  Meyer, N. N. (L.)

OKLAHOMA

Grandfield—Foshee, W. C. (L.)
Lawton—Barber, G. S. (L.)
Oklahoma—Allen, E. P. (L.)
[illegible]
L. (L.)
E. F.
(L.)
Wapanucka—Ellis, J. M. (L.)

OREGON

Pendleton—Boyden, G. L. (L.)
Portland—Streit, E. H. (C.)

PENNSYLVANIA

Athens—Holcomb, C. P. (C.)
Bradford—Hogan, W. C. (M.)
Chatham Run—Corson, J. M. (L.)
Connellsville—Junk, J. L. (C.)
Kingston—Dattner, A. A. (L.)
Malvern—Kurtz, C. S. (C.)
Mount Pleasant—Depta, M. (L.)
Myerstown—Gockley, H. F. (L.)
New Kensington—Wilson, L. F. (L.)
Philadelphia—Bigler, C. A., Jr. (L.)
  Peters, F. C. (L.)
Pittsburgh—Evans, D. R. (L.)
  Jennings; C. W. (C.)
Polk—Dwyer, J. E. (C.)
Reading—Schantz, H. F. (L.)
St. Petersburg—Beals, C. W. (L)
Swissvale—Pyle, W. T. (C.)
Uniontown—Jeffrey, R. H. (L.)
York—Smyser, H. D. (C.)

SOUTH CAROLINA

Charleston—Kollock, C. W. (M.)
Great Falls—Lucas, J. E. (L.)
Hartsville—Egleston, W. (C.)
Pendleton—Day, R. B. (L.)

SOUTH DAKOTA

Yankton—Smith, F. C. (L.)

TENNESSEE

Cornersville—Moffitt, S. A. (C.)
Dresden—Fields, T. W. (C.)
Ducktown—Guinn, A. J. (L.)
Kimsey, W. W. (L.)
Joelton—Miller, J. R. (L.)
Knoxville—Lynn, W. N. (C.)
Pikeville—Greer, D. A. (C.)
Seviersville—Huff, J. H. (L.)
Somerville—Morris, J. W. (C.)
Springfield — Shoulders, H. S. (L.)
Woodland Mills—Burrus, S. (L.)

TEXAS

Aquilla—Montgomery, G. L. (L.)
Bullard—Chambers, B. F. (L.)
Edna—Hogg, G. (L.)
Lamasco—Gill, J. J. (L.)
Waxahachie—Tenery, W. C. (L.)

UTAH

Bingham Canyon—Smith, U. H. (L.)
Salt Lake City—Felts, H. B. (C.)

VERMONT

Bakersfield—Abernethy, L. (L.)
Barre—Stewart, J. W. (L.)
Rutland—Hamilton, J. M. (C.)

VIRGINIA

Abingdon — McChesney, W. W. (L.)
Bluefield—Steele, H. G. (C.)
Newport News — Buxton, J. T. (C.)
Richmond—Bradshaw, C. L. (L.)
Gill, W. W. (M.)
Muncy, J. B. (L.)

WASHINGTON

Rosalie—Brand, W. W. (L.)
Seattle—Pontius, N. D. (C.)
Winkel, A. H. (L.)

WEST VIRGINIA

Charleston—Young, H. H. (C.)
Hinton—Dillon, M. L. (L.)
Varney—Musick, R. M. (L.)
Wheeling—Devereaux, R. L. (L.)
Meighen, T. H. (C.)

WISCONSIN

Appleton—Marshall, V. F. (C.)
Burlington—Prouty, W. A. (C.)
Green Bay—Mix, H. C. (C.)
Owen—Kyes, S. M. (L.)
Waupaca—Andrews, C. W. (M.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ALABAMA

Auburn—Yarbrough, C. S.
Birmingham—Smith, W. B.
Montgomery—McGehee, W. W.

CALIFORNIA

Chico—Moulton, D. H.
Grass Valley—Jones, C. P.
Los Angeles—Cochran, G. H.
Fredericks, D. P.
Frick, D. J.
McNab, T. R.
Moore, J. R.
Morton, L. B.
Snure, H.
Sacramento—Lyman, T.
San Diego—Thornton, A. J.
San Francisco—Barkan, H.
Bohm, J. E.
Graham, H. B.
Hill, H. P.
Reed, A. C.
Rixford, E.
Stillman, S.
Thorne, I. W.

COLORADO

Boulder—Profitt, R. V.

CONNECTICUT

Bridgeport—Roberts, E. R.

DISTRICT OF COLUMBIA

Washington—Bellinger, V. E.
Taylor, L. H.
Zigmand, J. W.

FLORIDA

Tampa—Duke, R. R.

GEORGIA

Augusta—Cutter, W. D.

IDAHO

Boise—Cluen, R. J.

ILLINOIS

Chicago—Hass, G. A.
Knox, O. M.
O'Connell, J. C.
Zeisler, E. P.
Mulkeytown—Phillips, F. A.
Springfield—Southwick, H. H.

INDIANA

Hamilton—Cameron, D. F.
Indianapolis—Reed, J. V.
Weil, H. J.
Kirklin—Harding, L. L.
Markleville—Williams, F. M.
New Haven—Bandelier, R. H.
Plymouth—Hardy, J. J.

IOWA

Huxley—Keller, G. E.

KANSAS

Peabody—Johnson, E. H.
Topeka—Weidling, W. H.

KENTUCKY

Louisville—Bayless, B. W.
Collier, T. R.

MAINE

Bethel—Tibbetts, R. R.
Portland—O'Sullivan, T. J.

MARYLAND

Baltimore—Conrey, A. F.
Lewis, R. M.
Shippen, L. P.
Cumberland—Littlefield, J. R.

MASSACHUSETTS

Boston—Barney, W. O.
Cheever, A. W.
Crandon, L. G.
Donnell, H. A.
Rosenau, M. J.
Von Meysenburg, L.
Cambridge—Dudley, A. W.
Stevens, H. P.
Fitchburg—Jennings, C. H.
Lynn—McDonald, J. F.
Manchester—Burnett, F. L.
New Bedford—Risley, J. N.

MICHIGAN

Detroit—Burr, G. C.
Williams, S. K.
Jackson—Peterson, E. S.
Royal Oak—Cameron, D. A.

MISSOURI

Kansas City—Lea, J. A.
Vieregg, F. R.
St. Louis—Briggs, G. C.

NEBRASKA

Omaha—McCrann, P. M.

NEW JERSEY

Trenton—Kent, M. M.
Upper Montclair—Areson, W. H.

NEW HAMPSHIRE

Rochester—Roberts, W. J.

NEW YORK

Albany—Bailey, C. L.
Brooklyn—Barber, R. F.
Collins, J. J.
Hanan, J. T.
Huffman, O. V.
Lee, J. A.
Meeks, F. R.
Moitrier, W.
Morris, E. J.
Watt, J.
Wood, J. G.
Ithaca—Johnson, S. C.
Mechanicsville—Huntington, P. H.
New Rochelle—Fulton, C. H.
Markel, S. S.
New York—Berkowitz, W.
DuBois, E. F.
Lubin, P.
Lynch, J. M.
Martin, L. G.
New York—McAlpin, K. R.
Polon, L.
Steinmetz, F. C.
Wyeth, G. A.
Rochester—Finley, E. L.
Schenectady—Garlick, J. N. B.
Syracuse—Vogt, G. C.

NORTH CAROLINA

Greensboro—Hicks, V. M.
Kingston—Parrott, M. C.

OHIO

Bellefontaine—Butler, R. H.
Columbus—Forman, J.
Hauer, A. M.
Reel, P. J.
Coshocton—Magness, A. P.
Toledo—Brockway, P. B.
Dolloway, L. M.
Moots, C. W.

OREGON

Eugene—Hayden, D. N.
Portland—Clancy, F. J.
Fortmiller, G. E.
Hendershott, H. M.
Lieser, R. L.
Scott, E. K.

PENNSYLVANIA

Canton—Dann, A. E.
Farrell—Kelly, R. A.
Philadelphia—Bristol, F. E.
Herman, J. L.
Keegan, A. P.
Leopold, R. S.
Lyon, B. B. V.
McCouch, G. P.
Moore, W. F.
Petty, O. H.
Saurman, J. S.
Pittsburgh—Aufhammer, C. H.
Billings, F. T.
Boggs, R. H.
McEllroy, W. S.
Moyer, R. P.
Weiss, E. A.
West Chester—Patrick, J. K.

RHODE ISLAND

Providence — Van Benschoten, G. W.

SOUTH CAROLINA

Aiken—Hutson, T. W.
Charleston—Thomas, P. S.
Clio—Mahoney, A. F.

TENNESSEE

Nashville—Friedman, H. F.

TEXAS

Carbon—Stubblefield, M. L.
Denison—McGregor, C. T.
Houston—Dailey, L.
Whitewright—May, R. R.

VIRGINIA

Ballsville—Carnal, R. C.
Chatham—Bennett, C. D.
Danville—Pritchett, C. B.
Norfolk—Byrd, G. B.
Faulkner, G. E.
Portsmouth—McAlpine, L. A.
Suffolk—Gibson, W. C.
Wakefield—Drewry, W. L.

WASHINGTON

Chehalis—Johnson, W. R.
Everett—Parsons, I. W.
Seattle—Abraham, E. D.
Hoff, E.
Parry, I. A.
Sturgis, M. G.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Fort Sill, Okla., base hospital, from Camp Devens, Lieut. M. J. HEATH, Pratt City.

Arkansas

The following order has been revoked: *To Walter Reed General Hospital* for instruction, from Camp Lee, Capt. R. C. KORY, Little Rock.

California

To Canal Zone, from Camp Kearney, Lieut. W. S. HARTFORD, Los Angeles.

To Carlisle, Pa., from Camp Grant, Major M. A. WILLIAMSON, Long Pine.

To Denver, Colo., from Camp Kearney, Lieut. J. B. LUCKIE, Pasadena; from Fort Winfield Scott, Capt. J. E. FAHY, Los Angeles.

To Fort Bliss, Texas, base hospital, from Camp Kearney, Lieut. F. J. BARNET, Los Angeles.

To Houston, Texas, Ellington Field, from Berkeley, Capt. B. F. SANDOW, Oakland.

To report to the commanding general, Western Department, from Camp Kearney, Major K. B. TURNER, Los Angeles.

To San Francisco, Calif., Letterman General hospital, from Camp Fremont, Capt. F. P. BOWEN, Los Angeles; from Camp Kearney, Lieut. T. J. NOLAN, San Francisco.

Colorado

To Denver, Colo., from Boston, Capt. C. G. McEACHERN, Denver.

To San Francisco, Calif., from Camp Dodge, Capt. J. D. WILSON, Ideal.

Connecticut

The following order has been revoked: *To Fort McHenry, Md.,* from Camp Dix, Major W. F. VERDI, New Haven.

Delaware

To New Haven, Conn., from Camp Dix, Capt. M. I. SAMUEL, Wilmington.

District of Columbia

The following order has been revoked: *To Rockefeller Institute,* for instruction, and on completion *to New York,* from Camp Meade, Capt. W. J. MANNING, Washington.

Georgia

To Camp Lee, Va., base hospital, from Camp Dix, Lieut. H. I. BATTEY, Atlanta.

Illinois

To Camp Devens, Mass., base hospital, from Walter Reed General Hospital, Capt. M. L. GALLAGHER, Chicago.

To Fort Oglethorpe, from Camp Dix, Major W. R. RAINEY, Salem.

To Fort Sheridan, Ill., from Camp McClellan, Capt. J. M. AXELSNO, Chicago; from Fort Des Moines, Capt. J. MYERS, Chicago.

To Hoboken, N. J., from Camp Custer, Capt. J. D. HAWKS, Cambridge.

To Philadelphia, Pa., from Dansville, Lieut. C. J. CHALLENGER, Chicago.

To report to the commanding general, Southern Department, *from* Austin, Major O. A. SUTTLE, Mount Vernon.

The following order has been revoked: *To Army Medical School, from Fort Oglethorpe,* Capt. J. W. HALL, Chicago.

Indiana

To Fort Sheridan, Ill., from Camp Gordon, Lieut. A. L. LOOP, Economy.

To Long Beach, N. Y., from Camp Pike, Lieut. H. G. HAMER, Indianapolis.

To Otisville, N. Y., from Camp Devens, Capt. E. A. CRULL, Fort Wayne.

To San Diego, Calif., Rockwell Field, from Vancouver, Capt. F. L. DARROW, East Haven.

To West Baden, Ind., from Camp Sheridan, Capt. H. L. MILLER, West Baden.

Iowa

To Fort Logan H. Roots, Ark., from Camp Logan, Capt. A. M. SHERMAN, Clarinda.

To Fort Snelling, Minn., from Otisville, Capt. W. L. HEARST, Cedar Falls.

To Hoboken, N. J., from Fort Des Moines, Lieut.-Col. A. von SCHRADER.

Kansas

To Chicago, Ill., from Fort Des Moines, Capt. C. M. FITZPATRICK, Salina.

Kentucky

To Boston, Mass., Northeastern Department, from Camp Devens, Major R. W. OGILVIE, Princeton.

Louisiana

To Fort Sam Houston, Texas, base hospital, from Camp Dix, Major U. MAES, New Orleans.

Maryland

The following order has been revoked: *To Camp Lee, Va.*, base hospital, from Camp Meade, Lieut. G. R. MICKLEWAIT, Baltimore.

Massachusetts

To Boston, Mass., from Camp Dix, Capt. F. E. LEWIS, Nantucket; from Camp Gordon, Lieut. A. A. CU[illegible] Reed General Hospital, Lieut. L. H. [illegible]

To Camp Lee, Va., from Camp M[illegible] Boston. Base hospital, from Camp [illegible], Springfield.

To East Norfolk, Mass., from Camp Dix, Lieut. W. OVERHOLSER, Westboro.

To Fort Riley, base hospital, from Camp Dix, Major C. C. BECKLEY, Lancaster.

To New Haven, Conn., from Camp Custer, Lieut. W. C. JENSEN, Worcester.

Michigan

To Army Medical School for instruction, from Camp Dix, Major F. C. KIDNER, Detroit.

To Detroit, Mich., from Camp Jackson, Capt. K. R. HARRIS, Detroit.

To Fort Sam Houston, Texas, base hospital, from Colonia, Major K. W. MAY, Detroit.

To Plattsburgh Barracks, N. Y., from Camp Dix, Major J. T. SAMPLE, Saginaw.

Minnesota

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. H. W. STONE, Minneapolis.

Missouri

To Fort McPherson, Ga., from Camp Dix, Major S. I. SCHWAB, St. Louis.

To Fort Sheridan, Ill., from Camp Gordon, Capt. F. J. PFEFFER, St. Louis; from Newport News, Major F. W. BAILEY, St. Louis.

To Houston, Texas, Ellington Field, from Fort Crook, Lieut. O. R. ENGLEMANN, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, from Rockefeller Institute, Lieut. W. S. CULPEPPER, Willow Springs.

Nebraska

To Camp Dodge, Iowa, as orthopedic surgeon, from Camp Zachary Taylor, Lieut. L. K. STRATE, Hastings. Base hospital, from Fort Des Moines, Lieut. W. E. WOLCOTT, Omaha.

To Carlisle, Pa., from Camp Lee, Lieut. C. M. HYLAND, Omaha.

To Walter Reed General Hospital, D. C., from Camp Travis, Lieut. J. D. McCARTHY, Omaha.

Nevada

To San Diego, Calif., Rockwell Field, from Vancouver, Lieut. D. W. BEDINGER, Ruth.

New Hampshire

To Camp Zachary Taylor, Ky., base hospital, from West Baden, Major A. F. WHEAT, Manchester.

New Jersey

To Carlisle, Pa., from Oteen, Major J. J. BRODERICK, Jersey City.

To Fort Douglas, Utah, from Camp Dix, Capt. A. F. GRAHAM, Paterson.

To Otisville, N. Y., from Fort Riley, Capt. H. S. SMITH, Newark.

To Walter Reed General Hospital, D. C., from New Haven, Capt. G. L. COOK, Penns Grove.

New York

To Camp Lee, Va., base hospital, from Army Medical School, Lieut. C. GOLDMAN, Brooklyn; from Camp Dix, Majors W. M. BRICKNER, New York; F. N. C. JERAULD, Niagara Falls.

To Camp Meade, Md., to examine the command for nervous and mental diseases from Camp Meade, Lieut. R. BOGAN, Brooklyn.

To Fort McPherson, Ga., from Camp Sevier, Lieut. S. L. SCIBETTA, Buffalo.

To Fort Warren, Mass., from Camp Dix, Major E. CUSSLER, New York.

To Hoboken, N. J., from Camp Dix, Capt. E. M. CONNELLY, New York; Lieut. M. J. TAYLOR, New York; from Camp Grant, Major W. A. MURPHY, New York.

To Jefferson Barracks, Mo., to examine the command for cardiovascular diseases, from Lakewood, Lieut. C. SHOOKHOFF, Brooklyn.

To Long Beach, N. Y., from Camp Dix, Lieut.-Col. J. J. MOORHEAD, New York.

To New York, Bellevue Hospital, as assistant instructor, from Washington, Lieut.-Col. W. J. ELSER, New York.

To Otisville, N. Y., from Camp McClellan, Capt. C. H. ERWAY, Elmira.

To report to the commanding general, Southeastern Department, from Camp Joseph E. Johnston, Capt. G. E. CLARK, Brooklyn.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Lee, Capt. M. I. BLANK, New York.

To Walter Reed General Hospital, D. C., from Camp Gordon, Lieut. L. F. KNOLL, Brooklyn.

Ohio

To Camp Sherman, Ohio, base hospital, from Camp MacArthur, Capt. W. E. RANZ, Youngstown.

To Camp Upton, N. Y., base hospital, from Fort McHenry, Lieut. J. F. WILLIAMS, Cincinnati.

To Fort Sheridan, Ill., from Camp Gordon, Capt. E. T. KNOOP, Cincinnati; Lieut. O. C. McDOWELL, Akron.

To Hoboken, N. J., from Camp Dix, Lieut. J. C. STAATS, Cincinnati.

Oklahoma

To San Francisco, Calif., from Fort Riley, Lieut. J. D. ENFIELD, Tulsa.

Oregon

To Fort Sheridan, Ill., from Fort Riley, Lieut. K. H. MARTZLOFF, Portland.

To San Francisco, Calif., Lettermann General Hospital, from Camp Lee, Capt. C. E. SAUNDERS, Medford.

Pennsylvania

To Camp Abraham Eustis, Va., from Camp Lewis, Major H. TUCKER, Philadelphia.

To Camp Meade, Md., from Camp Dix, Lieut.-Col. W. J. TAYLOR, Philadelphia.

To Fort Sheridan, Ill., from Camp Lee, Capt. H. W. MORROW, Swissvale; from Fort Des Moines, Lieut. L. W. WRIGHT, Williamsport; from Fort Oglethorpe, Lieut. H. E. MASSY, Sharon.

To Fort Warren, Mass., from Camp Dix, Lieut. G. M. BOGAR, Shamokin; from New Haven, Lieut. J. G. SILVERMAN, Philadelphia.

To Hoboken, N. J., from Camp Upton, Lieut. M. S. KLECKNER, Allentown; from Mineola, Capt. H. A. GREAVES, Philadelphia.

To Oteen, N. C., from Camp Gordon, Capt. I. H. ALEXANDER, Pittsburgh.

To Philadelphia, Pa., from Camp Dix, Capt. W. B. CADWALADER, Philadelphia.

To Plattsburg Barracks, N. Y., from Camp Dix, Major C. H. SMITH, Uniontown.

To San Francisco, Calif., from Camp Custer, Lieut. J. A. LOGAN, Pittsburgh.

To West Baden, Ind., from Camp Gordon, Major W. S. NEWCOMET, Philadelphia.

Philippine Islands

To San Francisco, Calif., for instruction, from Philippine Department, Major E. J. FARFROW, Manila.

South Carolina

To San Francisco, Calif., from Camp Wadsworth, Major C. LeBARON.

South Dakota

To Fort Riley, base hospital, from Fort McHenry, Capt. W. O. LEACH, Huron.

Tennessee

To Fort McPherson, Ga., from Camp Dix, Capt. A. W. HARRIS, Nashville.

Texas

To Camp Bowie, Texas, to examine the command for nervous and mental disease, from Fort Logan, Lieut. D. C. BURKES, San Antonio.

To Camp Custer, Mich., base hospital, from Camp MacArthur, Lieut. W. S. LORIMER, Handley.

To Camp Gordon, Ga., base hospital, from Hot Springs, Lieut. J. S. TOMKIES, Dallas.

To Camp Pike, Ark., base hospital, from Camp Lewis, Major J. C. ALEXANDER, Fort Worth.

To Denver, Colo., from Vancouver Barracks, Lieut. C. R. GOWEN, Carlsbad.

To Fort Logan H. Roots, Ark., from Camp Logan, Lieut. L. B. BIBB, Paris.

To Fort Sam Houston, Texas, from Camp Meade, Lieut. J. H. HAMILTON, Jonesboro. Base hospital, from Camp Dix, *Capt. R. F.* MILLER, Brenham; *from* Camp Travis, Lieut. H. O. BROWN.

To Houston, Texas, Ellington Field, from Austin, Lieut. D. H. BROOK, Travis.

To San Diego, Calif., Rockwell Field, from Vancouver, Capt. E. J. BURNETT, San Antonio.

To San Francisco, Calif., from Camp Abraham Eustis, Lieut. E. H. INMON, Tahoka.

Utah

To Camp Gordon, Ga., base hospital, from Fort McPherson, Lieut. H. SWANBERG, Salt Lake City.

To Fort Douglas, Utah, from Camp MacArthur, Capt. J. J. GALLIGAN, Salt Lake City.

To Jefferson Barracks, Mo., from Camp Hancock, Lieut. G. W. GOINS, Toolle.

Vermont

To San Francisco, Calif., from Camp Abraham Eustis, Lieut. C. W. CUMMINGS.

Virginia

To Philadelphia, Pa., from Camp Pike, Lieut. J. O. BOYD, Roanoke.

Washington

To Fairfield, O., Wilbur Wright *Field*, from Vancouver Barracks, Lieut. E. I. G. REINARTZ.

To report to the commanding general, Western Department, from Camp Fremont, Major C. H. STEARNS, Fort Ward; from Camp Kearney, Major S. Q. ELMORE, Pasco.

To San Francisco, Calif., from Camp Bowie, Capt. J. A. MAPES, Seattle. Letterman General Hospital, from Camp Kearney, Lieut. C. S. PASCOE, Tacoma.

West Virginia

To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. W. L. VAN SANT, Hinton.

Wisconsin

To Fort Logan H. Roots, Ark., from Camp Logan, Lieut. E. L. SCHROEDER, Shawano.

To Fort Porter, N. Y., from Camp Jackson, Capt. S. G. PAKE, Hayward.

To Fort Sheridan, Ill., from Fort Riley, Lieut. P. J. MERTEN, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. DANA E. ROBINSON, relieved at Providence, R. I., and from temporary duty at Chillicothe, Ohio, proceed to Evansville, Ind., and assume charge of the marine hospital at that place.

Surg. H. G. EBERT, relieved at the Columbia River Quarantine Station and from temporary duty at Manhattan, Kan., proceed to Chillicothe, Ohio, for duty in extracantonment sanitation.

Passed Asst. Surg. PAUL PREBLE, relieved at Cincinnati, Ohio, and at Portsmouth, N. H., proceed to Philadelphia, Pa., for duty in the Division of Health and Sanitation, Emergency Fleet Corporation.

Passed Asst. Surg. W. F. DRAPER, proceed to Richmond and other places in Virginia for conference with *health authorities in the matter* of demonstrations of rural sanitation.

Passed Asst. Surg. W. M. JONES, relieved at the Reedy Island Quarantine Station, proceed to the marine hospital, St. Louis, Mo.

Asst. Surg. R. R. SPENCER, relieved from temporary duty at St. Louis, Mo., *on the arrival of P. A. Surg. W. M. JONES*, proceed to Washington, D. C., for duty in industrial hygiene.

Asst. Surg. M. F. HARALSON, proceed to Alexandria and Lake Charles, La., and necessary points in Texas and Arkansas for inspection of work of extracantonment sanitation.

Asst. Surg. J. F. MAHONEY, relieved at Fort Worth, Texas, proceed to the New Orleans Quarantine Station for duty.

Acting Asst. Surg. W. S. RITENOUR, relieved at Anniston, Ala., proceed to Raleigh, N. C., for duty in extracantonment sanitation.

Acting Asst. Surg. M. H. WATTERS, proceed to Macon, Ga., for temporary duty in extracantonment sanitation.

Constr. Engr. N. V. PERRY, proceed to the Boston Quarantine Station for inspection of construction now being carried on.

Scien. Asst. J. P. ANDERSON, relieved at Florence, Ala., proceed to Pensacola, Fla., for duty in extracantonment sanitation.

Scien. Asst. G. S. BOTE, relieved at Fayettsville, N. C., report to Raleigh, N. C., for duty in extracantonment sanitation.

Scien. Asst. W. H. PRICE, proceed to Boston, Mass., for conference on health matters.

Scien. Asst. SAM SAUNDERS, relieved at Raleigh, N. C., report to the Hygienic Laboratory for duty in the study of vaccine.

Scien. Asst. W. C. VERDERY, relieved at Anniston, Ala., proceed to Fayetteville, N. C., for duty in extracantonment sanitation.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Vaccination Urged.—Dr. Judson D. Dowling, health officer of Birmingham and Jefferson County, issued a statement, January 28, urging persons who have not been vaccinated to secure vaccination immediately. A number of smallpox cases have recently been reported, and precautionary measures are necessary to avoid a repetition of the epidemic of last year.

Personal.—Dr. Haickel A. Elkourie, Birmingham, has been commissioned major, M. C., U. S. Army, and assigned to duty with the First Alabama Battalion, U. S. National Guard.——Dr. Charles A. Mohr, formerly city health officer of Mobile, has been elected full-time health officer of Mobile County. Under the new system an assistant health officer is provided and departments of vital statistics, laboratory, communicable diseases, *epidemiology*, meat and milk inspection, and chief sanitation inspector are established.

Medical Society Objects to Changes.—At a meeting of the Jackson County Medical Society held in Birmingham, January 27, a resolution was unanimously adopted opposing the bill recently introduced into the Alabama State Legislature which it is claimed tears down the present health service and replaces it by a system of questionable merit, averring that if the legislature will furnish proper support to the state health officer, the health and interests of the people of the state will be better conserved than by a radical change in the system.

Public Health Activities Cease in Montgomery.—*Robert* Olesen, P. A. Surg., U. S. P. H. S., has been directed by the Surgeon-General to arrange health matters in Montgomery so as to enable the municipality to take charge of the work when the service withdraws, which is expected to be about May 1. The health needs of Montgomery and Montgomery County as summarized by Dr. Olesen are:

1. A reorganized health department with a full time health officer in charge.
2. Continuation of antimalarial operations.
3. Maintenance of box and can sanitary system.
4. Continuation of government venereal clinic.
5. Educational efforts in behalf of public health through lectures, newspapers and pamphlets.
6. System of medical inspection in schools.
7. From two to four visiting nurses.
8. Thorough antifly campaign.
9. Prevention of smallpox and typhoid.
10. Cleanliness in establishments handling food and drink.
11. Safe milk supply through pasteurization.

ARIZONA

Personal.—Dr. George P. Sampson, Winslow, has been appointed superintendent of health of Navajo County.——Dr. Charles A. Thomas, Tucson, has been elected a member of the board of directors of the Tucson National Bank.——Dr. Ricketts, Tucson, has been appointed a member of the board of regents of Arizona State University.

CALIFORNIA

Physician's Petition Denied.—Judge George A. Sturtevant, San Francisco, January 14, it said to have denied the petition of Fischer R. Gordon, for the restoration of his license to practice medicine, which was revoked, January 25, by the state board of health after a hearing on the charge of having performed an illegal operation.

Medical Bills Introduced.—At a meeting of the California Society for Mental Hygiene held in San Francisco, February 2, passage of bills to establish a psychopathic hospital, to create a department of psychology at the State Penitentiary and to open the State Hospital for the treatment of mild cases of derangement on temporary commitment for observation and diagnosis, were urged.

Personal.—Dr. William F. Gates, Oroville, has been appointed county physician of Butte County and Dr. Lewis L. Thompson, Gridley, has been reappointed health officer of the county.——In the case of Dr. Mary M. Kroetz, San Francisco, whose license was revoked on a charge of attempting to procure an illegal operation, a writ of review has been granted by Judge Sturtevant.

Physicians in Trouble.—In connection with the mail fraud cases recently investigated by the federal grand jury at Los Angeles, which formed the basis for the return of six indictments involving violation of the postal laws, and alleged willingness to perform criminal operations, the following physicians are said to have been arrested: Drs. George W. Purcell, San Francisco; Augusta Stone, Los Angeles; Morris A. S. Franck, Los Angeles; George C. Somers, Los Angeles; Tom Shee Bin, Los Angeles, and Harry S. Walters, San Luis Obispo.

Campaign Against Venereal Diseases.—The machinery of the state board of health in its campaign against venereal diseases is now in operation in large parts of the state. Dr. Lewis Mickelson, San Francisco, head of the bureau of social hygiene of the state board of health is in charge of the work. Free clinics have already been established in ten of the principal cities of the state, and hospital clinics for venereal diseases will be equipped in many of the larger cities. Many of these clinics are open in the evening to accommodate persons employed during the day. Local health officers are empowered to isolate all persons deemed a menace to the public health.

Colloquia to Be Resumed.—The San Francisco Hospital Colloquia, both surgical and medical, have been resumed in the amphitheater at the San Francisco Hospital. The surgical colloquia commenced February 6 at 9 a. m., and the medical colloquia, February 7 at 9 a. m., and are to be continued thereafter weekly on Thursday and Friday mornings. These colloquia are open to all medical men and programs will be sent weekly, in advance, to all those who register with Dr. William Ophüls, dean of Stanford University Medical School, and pay a registration fee of $1 to cover clerical expenses; but whether registered or not, all physicians are welcome.

CONNECTICUT

Personal.—Dr. Gould A. Shelton, Shelton, celebrated the fiftieth anniversary of his entrance into the medical profession, January 14, and on that day was the guest of honor at a dinner given by physicians of Derby, Ansonia, Shelton and Seymour.

License Revoked.—An official report states that, Sept. 13, 1918, the state department of health of Connecticut revoked the license of Dr. George A. Faber, Waterbury, on the ground that he had been convicted by the superior court of Connecticut.

Elections.—At the annual meeting of the New Haven Medical Association, Dr. Louis M. Gompertz was elected president; Dr. Robert E. Peck, vice president; Dr. Frank L. Phillips, recording secretary; Dr. Samuel J. Goldberg, financial secretary, and Dr. Frank H. Wheeler, treasurer.——At the annual meeting of the New Britain Medical Society, January 8, Dr. Edward J. Dray was elected president; Dr. Joseph Robinson, vice president, and Dr. Frederick J. Mann, secretary-treasurer.

DISTRICT OF COLUMBIA

Personal.—Dr. Joseph A. Murphy has resumed his duties as chief medical and sanitary inspector of public schools.——Dr. and Mrs. W. Earl Clark, who have been for nearly two years working in the American Ambulance, Neuilly, France, have returned home.

Changes in Teaching Staff of Medical Department, Georgetown University.—Dr. J. Thomas Kelley has been appointed professor of gynecology, succeeding Dr. Isaac S. Stone, who becomes professor emeritus of that chair. Dr. C. R. Dufour has been made professor emeritus of diseases of the eye and ear. Drs. J. M. Moser and John A. Foote have been appointed associate professors of pediatrics.

New Assistant Health Officers for District of Columbia.—The post of assistant health officer which has been vacant since the promotion of Dr. W. C. Fowler to succeed Dr. W. C. Woodward as health officer has been filled by the appointment of Dr. John Paul Frey, a graduate of George Washington University, 1910, and recently on the scientific staff of the National Vaccine and Antitoxine Institute.

GEORGIA

Typhoid Vaccine Ready.—Dr. Marvin F. Haygood, La Grange, head of the department of epidemiology of the state board of health, announces that sufficient typhoid vaccine for 15,000 persons is now ready for shipment wherever wanted in the state.

New Departments of State Board.—Two new departments of the state board of health were inaugurated, January 1. A bureau of vital statistics in charge of Dr. W. A. Harris, formerly in charge of the vital statistics of Texas, and a division of epidemiology in charge of Dr. Marvin F. Haygood, La Grange.

New Officers.—Fulton County Medical Society at its annual meeting elected the following officers: president, Dr. Elmore C. Thrash; vice president, Dr. Walter B. Emery; secretary-treasurer, Dr. Elisha P. Merrit, reelected, and censor, Dr. Marion T. Benson. At the installation ceremonies, January 2, the society decided to appoint a committee to wait on the attorney-general and governor of the state and ask them to aid in ridding the state of unlicensed practitioners and quack physicians.

Healthology.—The first issue of "Healthology," the bulletin of the Georgia State Board of Health, appeared, January 15. It is edited by Ray C. Werner, assisted by Dr. Thomas F. Abercrombie, Atlanta, secretary of the state board of health. The chief articles in the first issue are "Result of Three Years of Active Public Health Administration in Floyd County," "Unfortunate Small Towns," "Checking Up on Tuberculosis" and "Physical Training and Examination of Schoolchildren."

IDAHO

Sterilization of Unfit.—Dr. D'Orr Poynter, superintendent of the Idaho State Sanitarium, Nampa, in the first annual reports of the board of trustees of the institution, was that the Idaho Legislature pass a eugenic law authorizing the sterilization of mentally and socially unfit persons.

New Officers.—At the annual meeting of the Bonner County Medical Society the following officers were elected: president, Dr. Charles P. Stackhouse, Sandpoint; vice president, Dr. A. L. Salmon, Clark's Fork, and secretary-treasurer, Dr. Floyd G. Wendle, Sand Point.

ILLINOIS

Personal.—Norval H. Pierce and Channing W. Barrett, majors, M. C., U. S. Army, both of Chicago, returned from abroad, February 17.——Dr. William Allen Pusey, Chicago, has been appointed consultant to the division of public hygiene of the state department of public health.——Dr. A. E. Owens, Princeton, has been elected president of the Bureau County Tuberculosis Association.——Dr. Rachelle S. Yarros, chairman of the subcouncil of the women's committee of the State Council of Defense, has been appointed supervisor of education for women.

MARYLAND

Hopkins Hospital Unit in the United States.—Members of the Johns Hopkins Base Hospital Unit arrived at Hoboken, February 15, aboard the *Finland*. Twenty-seven officers and 135 enlisted men under command of Major Richard F. Kieffer of Hagerstown comprised the unit which is now quartered at Camp Merritt, N. J., awaiting orders.

Addition to Frederick City Hospital.—At a meeting of the managers of the City Hospital of Frederick, a committee was appointed to solicit funds for the erection of a building adjoining the hospital for the treatment of contagious diseases. The need of an isolated department was made manifest during the recent epidemic of influenza. Because of the danger to other patients, no influenza cases were received at the hospital.

Library Building for the Johns Hopkins Hospital.—Plans, subject to change, have been drawn for a proposed new building on the grounds of the Johns Hopkins Hospital which will house the medical library of the hospital and the surgical histories of patients who have been treated there, and will also contain an auditorium, with subsidiary rooms for religious and philanthropic work. The new library will be built in honor of Dr. Henry M. Hurd, Baltimore, who for many years was superintendent of the hospital. The structure, according to present ideas, will cost $100,000 and will have a frontage of 100 feet on Wolfe Street, directly in the rear of the Administration Building. It will have a depth of 142 feet in the hospital grounds, its front three stories high, the building being of red brick and limestone, in harmony with the other buildings. A donation of $50,000 and one of $30,000 toward the structure have been made and it is thought that the remainder of the sum will be forthcoming.

Scarlet Fever on Increase.—A warning against scarlet fever has been sounded by the health department of Baltimore city. During the past week, 72 new cases were reported, while but 11 cases were in the city a year ago. The spread of the disease is largely the fault of parents, who fail to summon physicians in time and do not properly observe their children when they complain of symptoms which point to the disease. The cases have been mild in character and while the case rate has been high, there was but one death from the disease in a total of 364 fatalities, from all causes. Bronchopneumonia led all diseases in the number of deaths, the total from this disease being 47. There were 43 deaths from influenza, 36 from lobar pneumonia, 40 from heart disease, 29 from Bright's disease, and 26 from diseases of early infancy. Other diseases were fatal in the following number of cases: tuberculosis, 35; cancer, 9; apoplexy, 22; epidemic meningitis, 1; typhoid fever, 1; whooping cough, 4; diphtheria, 4. Births for the week aggregated 296. Three hundred and sixty-five new cases of influenza were reported for the week ending February 7. Sixty-four new cases of bronchopneumonia and 35 new cases of lobar pneumonia were reported for the week.

Personal.—Dr. John T. Geraghty, Baltimore, who was operated on at the Johns Hopkins Hospital for appendicitis, is convalescing, and will shortly return to his home in Guilford.——Capt. Hugh W. Brent, Baltimore, of the University of Maryland Base Hospital Unit has arrived in New York on the *Stockholm*. Captain Brent has been overseas for about a year and was stationed for a time at the Queen's Hospital, London, later joining his unit in France.——Major J. Albert Chatard, Baltimore, has sailed from Brest for the United States. He enlisted in the Medical Corps, July 1, 1917, and sailed for France as chief medical officer of Base Hospital No. 78. His headquarters while overseas have been for the most part at Toul.——Capt. George L. Stickney, Twenty-Sixth Infantry of the First Division, has returned from France and after a short furlough, reported at Camp Dix, N. J., to await further orders. He first served with the British, and in the autumn of 1917 joined the American Expeditionary Forces at Toul.——Capt. G. Hampton Richards, mayor of Port Deposit and physician to Tome Institute, who has been in France with the British and American Expeditionary Forces for more than seventeen months, has returned and is now stationed at Camp Dix awaiting discharge.——Lieut. David Silberman, Baltimore, has returned from overseas where he served eight months with the Eighty-Second Division.——Dr. J. Horton Kelly, Still Pond, has been taken to the Baltimore Hospital for enucleation of an eye, injured several months ago.

MASSACHUSETTS

Personal.—Dr. Richard C. Cabot, Boston, has returned from abroad.——Dr. John W. Baird, professor of experiments and psychology in Clark University, Worcester, is reported to be critically ill in Johns Hopkins University hospital, Baltimore.

Asks Appropriation for Study of Influenza.—On recommendation of the trustees of the Boston City Hospital, the mayor has asked the city council for a special appropriation of $3,000 for the study and treatment of influenza; of this amount $1,000 is for equipment immediately needed and $300 a month for assistants and laboratory supplies.

Advisory Health Staff Appointed.—On suggestion of Health Commissioner Woodward, Mayor Peters has appointed the following medical advisory board for the health department of Boston: Drs. Richard M. Smith, John P. Treanor, Anna G. Richardson, Edward J. Denning, J. Dellinger Barney, David L. Edsall, James J. Minot, Harry Linenthal, Henry M. Pollock, Horace E. Bragdon and John Bapst Blake.

MICHIGAN

Personal.—Dr. Mabel E. Elliott, Benton Harbor, has started for Asia Minor.——Dr. Ralph F. Miller has been appointed city physician of Adrian.

Reorganization of State Board of Health Proposed.—Franklin Moore, St. Clair, has introduced a bill into the state legislature providing for the reorganization of the state board of health by requiring the appointment of a state health commissioner of the state board of health, and an advisory council of five physicians who will have charge of the health program throughout the state. The bill provides that the health commissioner shall be appointed for a term of six years and shall receive a salary of $6,000 annually, that he must be a registered practitioner and must have been in active practice for five years. The chief deputy will receive a salary of $3,000, and at least three of the five members of the advisory council must be qualified physicians and will receive actual expenses and $10 a day while attending meetings of the state council.

MISSOURI

Annual Banquet of Society.—At the annual banquet of the Buchanan County Medical Society at St. Louis, Dr. Daniel Morton acted as toastmaster; the retiring president gave his annual address and introduced the incoming president; an address was given by Rev. C. Hely Moloney, and returned medical officers of the society narrated their experiences in service.

New Officers.—At the annual meeting of the Green County Medical Society at Springfield, Dr. Joseph W. Love, for several years recording secretary, was elected president; Dr. Eugene C. Roseberry, vice president; Dr. Thomas O. Klingner, secretary (reelected for the tenth consecutive term), and Dr. Walter E. Handley, treasurer, all of Springfield.——William O. Owen, colonel, M. C., U. S. Army, director of the Army Medical Museum, delivered an address on "War Surgery," illustrated by moving pictures, before the St. Louis Medical Society, January 11.

NEW YORK

Hearing on Twomey Bill.—A hearing on the Twomey bill, which would transfer the powers of the department of narcotic drug control to the state department of health, was held, February 11. It is understood that Governor Smith sent a special message to the senate public health committee urging that this be done.

Personal.—Dr. Jacob Goldberg, Buffalo, has been appointed a member of the state public health council.——Dr. Charles W. Pilgrim has been elected chairman of the section on mental hygiene and medical advice of the state conference of charities and corrections.——Dr. Frederick Peterson, New York City, has been renominated as superintendent of the Craig Colony for Epileptics, Sonyea.

Association Changes Name.—At the annual meeting of the Rochester Tuberculosis Committee, held February 6, the name of the organization was changed to the Rochester Tuberculosis Association. The following officers were elected: chairman, Dr. Howard L. Prince, member of the executive committee, Drs. Henry T. Williams and Joseph Roby. The address of the evening was delivered by Dr. Donald B. Armstrong, executive officer of the community health demonstration, Framingham, Mass.

State Hospital Commission Makes Recommendations.—The building of a new psychopathic hospital in New York City has been recommended to the legislature by the state hospital commission in its annual report. Enlargement of the Creedmoor branches of the Brooklyn Hospital are also recommended. The proposed psychopathic hospital for New York City is for preliminary treatment and research work in New York City and the need of such an institution is being stressed as most urgent. The report shows that during the year 1918 the state spent $10,484,000 for its insane, the per capita cost per diem was only 72 cents. A total of 45,136 were treated in thirteen civil hospitals, and 37,352 patients are now being cared for. Of those discharged 3,452 were benefited by treatment and 1,637 cured. A marked decrease of insanity from alcoholic causes was noted. At the close of the fiscal year fifty-two state hospital physicians were on military duty.

Postgraduate Course in Infectious Diseases and Public Health.—Arrangements have just been perfected by which a new course in infectious diseases and public health will be given under the joint direction of the Albany Medical College and the New York State Department of Health, to start, March 5, and to be open both to physicians and health officers, but with no connection with undergraduate instruction. The course will be under the general supervision of Dr. Charles C. Duryee, sanitary supervisor, state department of health, Albany, to whom all correspondence regarding the course should be addressed. The fee for the course is to be $25, payable in advance or in monthly instalments if desired. Those who have completed any of the various courses of instruction for health officers, either at Albany or elsewhere, are invited to attend the course at a nominal fee of $5. Attendance of one day weekly during March and April, and one and a half days during May and the first two weeks in June will be required. On completion of the course and a satisfactory examination a certificate will be issued.

New York City

Harvey Society Lecture.—The fourth lecture of the Harvey Society series will be developed at the New York Academy of Medicine, March 1, at 8:30 p. m., by Dr. Frederick S. Lee, on "Industrial Fatigue."

Personal.—Dr. William E. Lippold, Brooklyn, is reported to be seriously ill with septicemia due to an operation wound.——Dr. Herman Seidler, Brooklyn, charged with driving his automobile across Manhattan Bridge at the rate of 30 miles an hour, is reported to have been fined $100 and sentenced to ten days' imprisonment in the city prison. This is his sixth conviction for this offense.——Dr. S. Dana Hubbard has been placed in charge of the division of industrial hygiene of the department of health.

Free Clinic for Speech Defects.—The first free medical clinic devoted solely to the treatment of defective voice and speech defects has been opened at 142 East Thirty-Seventh Street. This clinic has the following definite objects: To cure all forms of speech and voice disorders such as stuttering, lisping, stammering, nasality, cleft palate speech, etc.; to take care of defective teeth, mouth or jaw conditions when these are the cause of defective speech; to take care of nervous and mental conditions when they are causative or associated with defective speech and to reeducate patients to overcome their faulty voice or speech habits. The clinic will also maintain a central information bureau and clearing house for speech and voice disorders. One of the special features of the clinic are the evening classes. Dr. James Sounett Greene is the medical director.

OHIO

Profiteering Charges Inquiry.—On invitation of the Cleveland Academy of Medicine, the state medical board agreed to conduct an investigation in Cleveland, beginning January 23, as many complaints of profiteering among physicians had been made to the acting health commissioner of Cleveland. The attorney-general, who was consulted in the matter, ruled that the board was without authority to make such examination.

Continues Practice Although Unlicensed.—Statement made by Levi W. Hunt, Toledo, a chiropractor, before a joint health committee of the general assembly at Columbus, February 6, apparently indicates that this individual's license to practice has been twice revoked, first on a charge of gross immorality, and second for objectionable advertising, but nevertheless he continues to practice. The committee stated that investigators will be sent to Toledo and that Hunt will be prosecuted on a charge of practicing medicine without a license.

Personal.—Dr. Louis Kahn, health officer of Columbus, has resigned, his resignation to take effect, February 15.——Dr. Pinckney D. Shriner has been appointed president of the board of health of Columbus.——Drs. Wells Teachnor, Ira B. Hamblin and Oscar H. Sellenings have been appointed members of the board of health of Columbus.——Dr. Daniel B. Spitler, Hoytville, has been appointed coroner of Wood County.——Dr Franklin D. Sickles, Fredericktown, suffered amputation of his right leg at the knee, January 23.——Claud C. Craig, Urbana, has been appointed health department head at the work of the Victor Rubber Company, Springfield.

PENNSYLVANIA

Philadelphia

Personal.—Lieut. Penn-Gaskell Skillern, Jr., senior medical officer aboard the *U. S. S. Orizaba,* has been recommended the second time for devotion to service.——Dr. Jacob J. Schweller has been appointed clinical assistant physician, board of health.——Dr. Peter Moylan has been appointed a member of the state board of public charities to succeed Mrs. Elizabeth Thaw.

Hospital to Open Soon.—The Harriman Hospital, which was recently built and equipped at a cost of approximately $100,000, will be formally opened for reception of patients. The hospital will be conducted not only for the benefit of the employees of the Merchant Shipbuilding Corporation at Harriman, but for the treatment of cases from Bristol, Newtown, Langhorne, Hulmeville and other surrounding towns.

Medico-Chirurgical Reopened.—The University of Pennsylvania Graduate School of Medicine reopened the Medico-Chirurgical Hospital on Saturday, February 15, when Philadelphia physicians were invited to a private inspection of the plant. The hospital will be employed for general hospital work and has been equipped throughout with new medical and surgical instruments of the most recent development. There will be departments of medicine, surgery and obstetrics. Although it is to be used as a general hospital it is intended to become a center of instruction and clinical work for graduate students of the University of Pennsylvania. The department of medicine is in charge of Dr. James M. Anders; surgery, Dr. Francis A. Mantz, and obstetrics, Dr. William R. Nicholson. The hospital has more than 100 beds.

TENNESSEE

Personal.—James L. Andrews has taken up his former duties as superintendent of the Memphis Health Department. ——Dr. Newman Taylor has resumed his work as secretary of the health department of Memphis, and Dr. Hiram B. Jacobson, who has been acting as secretary, has taken up again his work as inspector of schoolchildren.

Hospital Notes.—A contract was let, February 11, for additional improvements to the main building of the Baird-Dulaney Hospital, formerly the Hosmer Hospital, Dyersburg, to cost about $50,000. Application has been made and approved by the legislature of the state to increase the capital stock of the institution from $25,000 to $75,000.——The Nashville Protestant Hospital offered a deed of trust, January 20, to cover the loan of $30,000 secured for the purpose of paying for its real estate and for the equipment of a new ward, and for the improvement and extension of its hospital facilities.——Arrangements are being made for repair work on the Lincoln Memorial Hospital, Knoxville, which was damaged by fire, Dec. 6, 1918. The repairs will cost from $6,000 to $7,000.——At the annual meeting of the Baptist Memorial Hospital, Memphis, it was reported that during the year 5,787 patients had been cared for, 1,000 of whom were free patients. With the completion of the new wing the hospital will have a capacity of 500 patients. It is expected that the new wing will be ready for occupancy this month.——The Government Free Trachoma Hospital, Tazewell, which has been closed for several weeks, was reopened, January 14.——The McNabb Sanitarium for the Treatment of Noncontagious and Nonsurgical Diseases, Knoxville, has been opened, and will accommodate ten patients.

TEXAS

Personal.—Dr. Beverly F. Young, San Antonio, was reelected superintendent of the Southwestern Insane Asylum, February 6.——Dr. Charles W. Goddard, Holland, has been appointed city health officer and president of the state board of health, to succeed Dr. William B. Collins, Austin.

Nominations for State Board.—Governor Hobby, January 29, sent the following nominations for the state board of medical inspectors: Dr. William C. Swain, Dallas County; Dr. Cabel O. Terrell, Eastland County; David Berry, Bexar County; S. L. Maye, Bell County; R. Y. Lacy, Camp County; D. W. Davis, Jefferson County; D. S. Harris, Harris County; Thomas J. Crowe, Dallas County; Horace C. Marrow, Travis County, and Marquis E. Daniel, Fannin County.

Public Health Commission Appointed.—The Texas Public Health Commission, appointed by the governor to investigate health conditions in Texas and report its findings, is composed of Dr. Otto C. Ahlers, Sherman, representing the Texas Town and City Planning Association, chairman; Mr. Charles Saville, Dallas, of the State Council of Defense, Committee on Sanitation and Medicine, vice chairman; Mr. D. E. Breed, Austin, representing the Texas Public Health Association, secretary; Dr. Platt W. Covington, Austin, representing the International Health Board; Dr. Selwyn P. Rice, Marlin, representing the State Medical Association of Texas; Mr. R. C. Bedicheck, Austin, representing the University of Texas, Extension Unit; Dr. W. A. Davis, Jr., Austin, representing the state board of health; Miss Anne Webb Blanton, Austin, representing the department of education; Dr. R. C. Derivaux, P. S. Surg., U. S. P. H. S., New Orleans; Mr. Elmer Scott, Dallas, representing the Texas Society Hygiene Association, and Mr. A. A. Long, representing the Texas League of Municipalities.

WISCONSIN

Elections.—Outagamie County Medical Society at Appleton, January 28, president, Dr. Manly J. Sandborn, Appleton, and secretary-treasurer, Dr. George T. Hegner, Appleton.——Eau Claire County Medical Society, at Eau Claire, January 27, president, Dr. E. M. Seizer; vice president, Dr. William O. Seemann, Eau Claire; secretary, Dr. Roy E. Mitchell, Eau Claire.——Brown-Kewaunee County Medical Society, at Green Bay, January 21, president, Donne F. Gosin, Lieut., M. C., U. S. Army, Green Bay; vice president, Dr. Nobert M. Kersten, DePere, and secretary-treasurer, Dr. Edwin S. McNevins, Green Bay.

Personal.—Drs. Edward S. Hayes, Eau Claire, and William F. Whyte, Watertown, have been appointed members of the state board of health and vital statistics.——Dr. Valentine A. Gudex, Milwaukee, has been appointed deputy state health officer in charge of the fourth district, with headquarters at Eau Claire.——Dr. L. Rock Sleyster, superintendent of the State Hospital for the Criminal Insane, Waupun, has resigned to become superintendent of the Dr. Richard Dewey Sanitarium, Wauwatosa.——Dr. John M. Dodd has been reelected president of the Ashland General Hospital Association.——In the damage suit for $20,000 brought by Clarence Van Wegner, New Holstein, against Dr. William G. Doern, Milwaukee, in which the jury returned a verdict for $3,600 for the plantiff, the verdict was set aside by Circuit Judge Gregory, January 22, who stated that the evidence submitted was sufficient to exonerate the physician.

CANADA

Influenza Kills Indians.—According to the official figure of Dr. Orton I. Grain, Winnipeg, chief medical officer for the Federal Government of Indian affairs, approximately 750 deaths from influenza have occurred among the 14,179 Indians of Manitoba.

University News.—The medical building of the University of Toronto is to be enlarged by a new addition.——The Carnegie Corporation of New York has voted a grant of a half million dollars to Queen's University, Kingston, Ont. This grant is related to that in the will of Dr. James Douglas, New York, and is conditional on raising an additional $500,000.

Pensions in Canada.—A new arrangement has been established in connection with pensions to soldiers in Canada. District officers of the different military districts will now not only examine the soldier but will estimate his percentage of disability, so that the work will be completed by the medical board which examines the soldier. Final decision will, however, rest with the central office at Ottawa.

Hospital News.—A new undenominational hospital is to be built in connection with St. Michael's parish, Belleville, Ont. ——A new federal sanatorium for Ontario soldiers is to be established in that province by the Dominion government. The province will shortly select the site. It will be for soldiers suffering with tuberculosis. Half the cost will be borne by the province of Ontario, and half by the Dominion. Three hundred thousand dollars is to be spent on the work.

Personal.—Lieut.-Col. William J. O. Malloch, who has just returned to Toronto from four years' service overseas, is ill with pneumonia. Dr. Malloch went over with the University of Toronto Base Hospital in 1915, was at Saloniki, and latterly has been chief surgeon at the Basingstoke Military Hospital.——Dr. William J. McCollum, Toronto, was taken ill on a holiday visit to Florida.——Lieut.-Col. Robert B. Wilson, roentgen-ray expert, Montreal, is at present doing military work in Toronto.——Lieut.-Col. Hardy of the Toronto Military Base Hospital has been appointed officer in command at the New Rosedale Military Hospital.

GENERAL

International Meeting of Obstetricians and Gynecologists.—Preparations have already been begun for the international meeting of gynecologists and obstetricians which is to be held in New York City, Sept. 14, 15, 16 and 17, 1920. Dr. J. Riddle Goffe of New York is the president.

Federation of Associations for Cripples.—The *American Journal of Care for Cripples,* a special periodical in English on provision for the disabled, becomes a monthly with its January issue, according to announcement by its editor, Douglas C. McMurtrie. The journal is now entering on its eighth volume. This periodical will contain in the future the studies, translations, and abstracts produced by the research department of the Red Cross Institute for Crippled and Disabled Men, which material has hitherto appeared in a special series of publications. The Journal also continues as the official organ of the Federation of Associations for Cripples.

W. W. Palmer Succeeds J. H. Long on the Council on Pharmacy and Chemistry.—At the recent meeting of the board of trustees, C. L. Alsberg, chief of the Bureau of Chemistry, U. S. Department of Agriculture; John Howland, professor of pediatrics, Johns Hopkins University Department of Medicine, and Henry Kraemer, professor of pharmacognosy, University of Michigan, College of Pharmacy, were reappointed to serve on the Council on Pharmacy and Chemistry for a further period of five years. The trustees appointed W. W. Palmer, associate professor of medicine at the College of Physicians and Surgeons of Columbia University, to fill the vacancy caused by the death of Prof. J. H. Long, who had been a member of the council since its organization. Walter Walker Palmer took his B.S. at Amherst in 1905; received his M.D. from Harvard Medical School in 1910; was a Fellow of Medicine at Harvard from 1915 to 1916, serving under Dr. David L. Edsall, former member of the Council on Pharmacy and Chemistry; was assistant professor of medicine at Cornell University Medical College in 1917, and associate professor of medicine at the College of Physicians and Surgeons of Columbia University in 1918. Dr. Palmer has also been actively engaged in various biologic researches at the Rockefeller Institute. Among his publications are: Significance of Urinary Acidity in Nephritis, Paroxysmal Edema, Absorption of Protein and Fat After Resection of Half the Small Intestine, Basal Metabolism and Creatinine Elimination, and Factors of Acid Secretion. He and co-workers at the Rockefeller Institute have also published a large number of articles on acidosis and its relation to diabetes. "The Colormetric Determination of Hemoglobin" by Palmer is officially recognized for use in U. S. Army Hospital Laboratories.

FOREIGN

Vaccination in Africa.—A Spanish exchange states that the Sultan of Tangier has decreed that no one can enter the French zone without presentation of a vaccination certificate.

Deaths in the Profession Abroad.—Dr. **H. G. Plimmer,** professor of comparative pathology in the Imperial College of Science, London, author of numerous works on tropical diseases, microscopic findings, Plimmer's bodies, etc., aged 61. ——Dr. **I. C. L. Holm,** the leading spirit in the development of the sanatorium system in Norway, aged 73.

Tuberculosis Among Belgian Refugees in the Netherlands.—The *Nederlandsch Tijdschrift* relates that among 23,791 Belgians living scattered in 320 different communities about 3 per thousand are *tuberculous.* In the refugee camps, however, the proportion is much higher, up to 11.8 per thousand among the 14,844 refugees crowded in four refugee camps. Only in one of the camps had hospital provision been made for them at that time.

Work of Medical Students During the Epidemic.—The *Siglo Medico* of Madrid relates that the municipal authorities of Ciudad Real recently distributed diplomas to the medical students of the town expressing the grateful appreciation of the public for the assistance they rendered during the epidemic of influenza. The ceremony was presided over by the governor, and at its close a banquet was tendered the students by the Junta de Sanidad.

Scarcity of Drugs in Norway.—The *Norsk Magazin for Lægevidenskaben* recently published an official communication to the effect that owing to the scarcity of hypophosphis calcicus, the syrupus sacchari is to be used in its place in compounding the syrupus pectoralis of the Pharmacopeia. Extreme economy in the use of camphor is also ordered, reserving it for strictly internal uses. A further order specifies that substances must not be used in sterilizing rooms which destroy the paint, as the supply of linseed oil is so low that it must be saved for strictly necessary painting, and existing paint must be spared from damage. It is stated that paint can be washed without harm, with proper care, and effectually sterilized by using formaldehyd-green soap, cresol soap or phenol-green soap, for the soap suds. Crude potassium permanganate is not to be obtained in the market, and the purified costs 20 crowns per kilo, a prohibitive price for its use in sterilization of rooms.

The New Premier of Spain a Physician and Medical Editor.—The profession in Spain is rejoicing over the appointment of Dr. Amalio Gimeno y Cabañas to be ministro de la Gobernacion, the premier of the realm. He heads the large editorial staff of the *Siglo Medico* of which Cortezo—who has also been in the cabinet—is director. Dr. Gimeno is professor of general pathology at the University of Madrid, and has long been a prominent figure in contemporaneous medical science in Spain. During his vacations he found relaxation in assuming charge of a spa, as director of a *balneario.* The choice of Dr. Gimeno is hailed by the profession in Spain as an augury of better things in public health matters and as an honor to the profession. No physician has been appointed premier in Spain for a long time, not since the days of Dr. N. M. Rivero. In a recent interview, Dr. Gimeno stated that he had already drawn up an outline for certain measures to hasten the time when Spain will rank in public health matters with the peoples now taking the lead in progress. The measures outlined for presentation to the cabinet include motherhood allowances, pure food legislation, hygiene for factories and shops, and protection for women and children. In talking with the king, he dropped the rôle of premier and, speaking only as a professor for forty years, urged the king to start a movement for a better equipped building for the medical school, to bring its quarters up to date and offer attractions to foreign students.

Medical Research in Australia.—The Walter and Eliza Hall Institute of Research in Pathology and Medicine has been established in Melbourne in connection with the Melbourne Hospital, through the generosity of the trustees of the Walter and Eliza Hall Fund. The institute is controlled by a board representing the trustees, the University of Melbourne and the Melbourne Hospital. A spacious building, including a basement and three stories, has been erected at a cost of over $60,000 in immediate connection with the pathologic department of the hospital. The hospital itself has recently been entirely rebuilt and now contains 350 beds. Applications for the offices of director and of first assistant of the institute are being invited through the agent-general for Victoria, Melbourne Place, Strand, London, from whom full information may be obtained. The director has the management of the institution; devotes his whole time to this work, is responsible for keeping research as the primary object of the institution, will give all assistance to the medical staff and other officers of the Melbourne Hospital in postmortem work and clinical pathology, will make arrangements for clinical instruction and laboratory instruction to medical students in postgraduate work, and provide or maintain the comforts of patients or others residing in, or who use the hospital. His term of service is five years and he is eligible for reappointment. His salary is $5,000 a year, payable monthly, and in addition, the board will procure an endowment insurance on the director's life, to be payable at the age of 60 or predecease, the annual premium for this insurance being $375. If the director comes from America, $625 will be allowed for travel expenses. Applicants should be between the ages of 25 and 35. All applications must be accompanied by original or certified copies of testimonials, schedule of experience, list of research work and photograph.

It is expected that the director will take duty, Oct. 1, 1919. The first assistant director shall be not over 35 years of age, and will be expected to devote his entire time to the work of the institute as directed by the board and under the instruction of the director. He will have the management of the institution in the absence of the director, will give such assistance as may be prescribed to the medical staff or other officers of the Melbourne Hospital in postmortem work and clinical pathology and bacteriology, and will take such part as may be prescribed in the instruction of medical students in laboratory work and in postgraduate instruction. He holds office for five years and is eligible for reappointment. His salary will be $3,000 a year, payable monthly.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Colombian Medical Congress.—The *Repertorio* announces that the Fourth National Medical Congress will convene at Tunja in August. The registration fee is $5 m/n which is to be forwarded to the secretary-treasurer, Dr. José del C. Cardenas, Bogotá, Colombia.

CORRECTION

Texas Appropriation.—The item under Texas News in The Journal of January 25, headed "Deficiency Appropriation for Tuberculosis Colony" was incorrect in that the appropriation of $20,000 was not allowed as a deficiency, but was added to the general appropriation bill now before the legislature and has been reported favorably but not yet passed. It is believed, however, that the bill will pass. This appropriation is to provide for furniture for two new dormitories with a capacity of 144 patients, making a total capacity of the institution of 325.

PARIS LETTER

Paris, Jan. 23, 1919.

Gas Gangrene

At a recent meeting of the Académie des Sciences, Dr. Charles Richet, professor of physiology in the Paris medical faculty, reported the results from the use of multivalent serum in the treatment of gas gangrene. This serum was obtained from horses that had been injected with the cultures of sixteen micro-organisms most commonly found in cases of gas gangrene. Some of these horses were also immunized against tetanus.

As a result of these injections, the general and local conditions of these patients improved rapidly; the pulse improved, urine secretion was increased, the characteristic facies disappeared, and the gas which had penetrated the tissues, and sometimes entered the thorax and abdomen, sometimes was absorbed in a few hours. Eighty-one cases were treated in this way, with sixty-nine cures and twelve deaths—the percentage of cures being 85.19. Four of the fatalities occurred among men who had survived the gas gangrene but died of some other affection, such as, tetanus, bronchopneumonia with purulent pleurisy, double pneumonia, etc. Therefore, the actual mortality from gas gangrene was only eight, a death rate of 9.87 per cent. Some of these patients were at the point of death at the time the serum was injected. A certain number, whose condition was recognized as being desperate, were cured by the serum injections. In several cases, where amputation or disarticulation was not done because of the enfeebled state of the patient or the extent of the gangrene, the limb was saved to the patient. The preventive and curative use of this serum is regarded as being an important aid to the surgical treatment of wounds infected by the bacteria ordinarily found in gas gangrene.

Compulsory Notification of Tuberculosis

The Conseil des ministres has authorized its president, the minister of the interior and the minister of finance, to present to the chamber of deputies a bill providing for the compulsory notification of open cases of pulmonary tuberculosis, as proposed by Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire. This bill provides also for the free treatment and hospitalization of these persons and pecuniary support for the patient's family. Dr. Mourier called attention to the fact that measures of this kind have been in force during the war for the care of tuberculous soldiers. About 55,000 tuberculous soldiers have been cared for in the hospitals and dispensaries, and the regulations now in force must be extended because there are at this time about 500,000 tuberculous persons in France. It is estimated that it will cost 84 millions of francs to provide the needed establishments, and that the annual expenditure will amount to 100 millions ($20,000,000).

A Prehistoric Pathologic Specimen

Dr. Marcel Baudouin recently exhibited to the Académie de médecine a pathologic specimen that is probably about 12,000 years old. The specimen is an inferior maxilla of the neolithic period, which shows positive evidence of a fracture which healed spontaneously, and of a curious hypertrophy of the posterior surface of the bone. This bone was excavated during the recent work done on military defenses in the outskirts of Paris. It was buried under a dolmen.

Public Health and the Sanctity of the Home

Should the sanctity of the home preclude carrying out certain public health measures? The mayor of Toulouse informed the public that in view of the establishment of the "casier sanitaire des maisons," the sanitary record of the building, the employees of the Bureau d'hygiène would visit the houses to gather the data. All persons who refuse these agents admission lay themselves liable to prosecution. Several householders regarded this edict as a violation of the sanctity of the home, and have appealed to the Conseil d'Etat. That body decided, however, that the law gives the mayor the right to enter a home for health reasons as set forth in the law of Feb. 15, 1902, regarding the protection of the public health. The exercise of these powers is practically impossible in many cases without an examination of the premises. The appeal of the proprietors was denied.

Instruments for Physicians of Devastated Regions

The Conseil général of the Association des médecins de France unanimously adopted a resolution asking that the undersecretary of state for the Service de Santé militaire consider the transfer or assignment and sale to the physicians of the devastated regions, whether in service or not, of the instruments and apparatus made otherwise useless by the demobilization of the various sanitary formations and supply depots. In the case of physicians entitled to war damages (*dommages de guerre*) the price of the instruments will be deducted from the sums due the purchaser.

Child Welfare Work

A conference held at Lyon, attended by Dr. Lucas, director of the children's bureau of the American Red Cross, and a French committee consisting of physicians and laywomen interested in child welfare in Lyons, decided to transfer the work of the children's bureau to the French committee. The Lyons societies which have been interested more especially in children's welfare have amalgamated, in a way, so as to collaborate with the committee which succeeds the American bureau. The Holtzmann hospital will also be in charge of the Comité français.

Deaths

Dr. Paul Fabre of Commentry, département de l'Allier, died recently, aged 73. He had been a national corresponding member of the Académie de médecine since 1889, and a corresponding member of the Académie royale de médecine de Belgique. He was best known for his work in industrial hygiene. He was especially interested in the health of the miners, the sanitation of collieries and the effect of underground work on miners.

Dr. Lesieur, professor of pathology and general therapeutics in the Lyons medical faculty, died from an attack of influenza contracted while on furlough.

Dr. Albert Weil, chief of the electroradiologic laboratories of the Trousseau hospital, died in Paris from pulmonary congestion. He was the author of numerous works on therapeutics, among them a textbook, Eléments de radiologie, which was recently awarded the Itard prize.

Dr. Lucien Butte, president of the Société de médecine de Paris and of the Association centrale des médecins de France, assistant physician-in-chief to the prefecture of police, died, aged 63 years.

Personal

Dr. Georges Clemenceau was unanimously elected honorary president of the Société de médecine de Paris.

Medical Inspector-General Sieur has been made president of the Comité consultatif de santé de l'armée, replacing Dr. Février. . . . Dr. Astruc, *agrégé*, adjunct professor in the Ecole supérieure de pharmacie of Montpellier, has been made professor of galenical and industrial pharmacy, a new chair.

Association of Parisian Medical Students

In response to common demand and in order to afford their comrades in arms an opportunity of taking up intensively their medical studies, the medical section of the Association générale des étudiants de Paris has recently decided to open an information office. In this connection the association has endorsed the prewar program (including didactic and clinical conferences, notices of vacancies and aid in securing reinstatement in former positions), and the furtherance, with the authorities, of compensation claims. Some of these appeals have already been granted, in that the mobilized students have been allowed to return to their universities and have been permitted to resume their former studies with full credit.

American Physicians Receive Legion of Honor Decoration

At the suggestion of M. André Tardieu, commissioner general aux affaires de guerre franco-américaines, the following named Americans have been made officers of the Legion of Honor: Dr. Livingston Farrand, president of the University of Colorado and president of Rockefeller Tuberculosis Commission; Dr. Simon Flexner, professor of pathology in the Rockefeller Institute. Dr. Selskar Gunn and Dr. Alexander Miller, assistant to Dr. Farrand, have been made chevaliers of the Legion of Honor.

LONDON LETTER

London, Jan. 29, 1919.

The Interallied Fellowship of Medicine

The objects of the Interallied Fellowship of Medicine (described in previous letters to The Journal), as stated by the honorary secretary, Sir St. Clair Thomson, are: 1. The coordination of all the resources of medical interest throughout this country so as to make them readily available for demonstration and investigation. 2. Initiation of schemes of scientific entertainment. These would embrace the arranging of facilities for visits to, or courses of study in, the various clinics, laboratories, museums and other medical institutions; the regular attendance on any one particular service or course of lectures or demonstration, and in addition the preparation of specially arranged addresses, demonstrations or scientific visits. 3. Later on the fellowship would be actively helpful in collecting and distributing information and in facilitating visits to overseas medical schools, meetings and congresses, and in being a center through which the temporary occupation of professional chairs or exchange of professorships might be arranged. 4. The promotion of personal friendly intercourse between the members of the profession in this country and their brethren from overseas. To promote these objects a center has already been granted by the Royal Society of Medicine, where arrangements will be made to collect, file and circulate information on all matters of medical interest. Rooms will be available for conferences, discussions, demonstrations or exhibitions. In fact, the fellowship of medicine will act as a sort of central Cook's tourist office for travelers in the medical world. The primary object of this association is not to arrange postgraduate study: this is the care of a separate association, also under the egis of Sir William Osler, with which there will be the most friendly cooperation. Postgraduates are particularly desirous of continuous and intensive training in one or more circumscribed departments of medicine. But the fellowship caters for all visitors, not only those seeking postgraduate classes, but also those wishing to study our medical history, institutions and organizations, hospitals, infirmaries, dispensaries, asylums, fever hospitals, lying-in institutions, nursing homes and sanatoriums, or our state and municipal hygienic arrangements. It is proposed to help them to hear and join in the scientific medical life of this country and provide them with entertainments of medical interest. It will help them to see any one particular man operate or hear any special clinical demonstration; to work in any laboratory or study or in any library, or to visit any asylum or investigate any system of drainage.

Liquid Eggs from China

The report by Dr. A. W. J. MacFadden on the work of inspectors of food during 1917-1918, which has been issued by the Local Government Board, deals with the importation from China of eggs in liquid form. Before the war the bulk of this material went to Germany, and the small quantities brought here were used for industrial purposes and, to a limited extent, for confectionery. After the outbreak of war, large consignments arrived in this country as cargoes in prize ships, and since then large quantities have been imported in the ordinary course of trade. These products, Dr. MacFadden states, occasionally arrive in the form of whole egg mixed, but usually the egg yolk and egg albumin are sent separately. In the latter case the albumin may be sent in a fluid state with preservative added or in a crystalline dried form. Samples of yolk were found to contain boric acid in amounts varying from 1.35 to 2.08 per cent. Sometimes common salt up to 10 per cent. is used, with a smaller amount of boric acid. Until comparatively recently the use of this liquid egg for food purposes was confined to the manufacture of cakes, biscuits, etc. The amount of boric acid in the finished food as eaten is reduced to about 5 grains a pound. During the latter part of 1917, however, liquid egg began to appear on the market in large quantities packed for domestic use in small tins and jars. In this form the product was available for use in milk puddings, pancakes, etc., and when used for such purposes, the amount of boric acid consumed by the individual would be considerable. There is also good reason to believe that large quantities have for some time been used in restaurants for similar purposes. The employment of these boricized products for domestic and restaurant use is open to serious objection. In the case of the smaller receptacles sold at retail, some of the packers make a statement to the effect that the contents should not be used for omelets or scrambled eggs; but even this small measure of protection is not available to persons eating at hotels, restaurants and similar places. Dr. MacFadden suggests that, as the importation of egg products from abroad will necessarily increase in the future, it would be advantageous, from the points of view both of the health of the consumer and of economy in shipping space, if arrangements could be made for the product to be shipped as dried egg instead of in a liquid form. Dried egg imports have proved very successful, and if the eggs are prepared and packed properly in this form, they are a wholesome and useful foodstuff.

A National Register of Population

At a meeting of the National Birth-Rate Reconstruction Commission, promoted by the National Council of Public Morals, the need of a national register of population was put forward by Dr. T. H. C. Stevenson for Sir Bernard Mallet, the registrar-general. Dr. Stevenson said that there were in this country a large number of partial registers of the population, but the census remained the only complete register, and that, being revised only once in ten years, was of use only for statistical purposes. The partial registers included at present the national register, the food register, electoral registers, school attendance registers, sickness and unemployment insurance registers, and many others. All these were, generally speaking, independently compiled and maintained, the information obtained by one not being made available for the purposes of the others. The proposal favored by the registrar-general was that a single master register should be set up which would include every man, woman and child in the country. It would contain certain particulars of general interest about each, such as address, name, sex, date and place of birth, and occupation, with information as to marriage and children. But no single register could possibly contain all the information that might be wanted for its own special purposes by any one of the multifarious records referred to. The proposal was therefore to link each of these up with the general register as part of a single coordinated system, providing for the communication to each of the special registers of the information of common interest collected by the general register, and leaving each of them to amplify this according to their own requirements. With this object the general register might record, in code form, on which of the special registers the person was borne; and information of removals, etc., would be communicated to these as received. The general register alone should have complete canvassing organization, none of the others requiring to start de novo, but merely to fill in gaps in their knowledge concerning certain individuals. As the register would deal with many millions of names, it would have to be maintained in local sections through the country; but it would be necessary to maintain a single central index to all the local registers. Births, deaths and removals would all be reported to this index. The central organization should coordinate and control the local general registers. Under the scheme indicated, eugenists would in time be provided with pedigree records of the population comparable in accuracy with those already provided for prize live stock; and the field for research could be indefinitely extended by tracing the records of the progeny of various unions.

Proposed Drastic Reform in the Lunacy Laws

The present lunacy laws were passed with little regard for the treatment of incipient insanity. Under existing conditions, many patients, owing to the objection of their relatives to their being certified as insane, are kept in their homes so long that when ultimately they are sent to an asylum their cure, which might have been effected by early treatment, is hopeless. The committee appointed by the Conference of Visiting Committees of the Asylums has prepared a report stating that the present lunacy acts are effete and that drastic amendment is of urgent national importance. They recommend that the words "pauper," "lunacy," "lunatic" and "asylum" should be deleted from the lunacy laws; that the establishment by local authorities of special mental hospitals for the treatment of either incipient or actual mental disease should be encouraged; that such hospitals should comprise inpatient and outpatient departments; that no patient of such a hospital should be under certification until the medical director of the hospital considers it necessary that the patient should be transferred to an institution such as is now known as an asylum; that special mental hospitals should not be subject to the supervision of the board of control (the body appointed by the government to control the treatment of lunatics), and that no report should be made to that board concerning any patient under treatment therein; that in connection with every medical school a special mental hospital (psychiatric clinic) should be established, in which proper facilities should be provided for research, teaching and training; that every medical officer appointed to any institution for the care and treatment of the mentally afflicted should be required, within two years from his appointment, to hold a recognized diploma showing that he is specially skilled in the science of the cure of mental ailments; that voluntary boarders should be admitted to the institutions now known as public asylums, and that the lunacy acts and the mental deficiency act should be consolidated, and, with the rules and regulations made under those acts, thoroughly revised.

Scientific Meeting of the British Medical Association

During the four years of the war, the scientific meetings of the British Medical Association were suspended and only the political meetings of the representatives were held. The last ordinary annual general meeting was held in July, 1914, and it had been arranged to hold the following meeting at Cambridge, under the presidency of Sir Clifford Allbutt. This meeting was abandoned, because of the strain on the profession owing to the war. It has been found impossible for Cambridge to arrange to receive the association this year, but it hopes to do so in 1920. It was therefore suggested that a special meeting might be arranged this year for the discussion of clinical and scientific subjects, but on a smaller scale than usual. At a meeting, the proposal was laid before Lieut.-Gen. Sir John Goodwin, the director general of the army medical service, and representatives of the medical services of the British navy and air force and of the medical services of the Dominions and of the United States. In opening the proceedings, Sir Clifford Allbutt said that the time had come to relay old tracks and make plans for reconstruction, but that it had not been considered advisable to hold a full-dress meeting this year. A short scientific meeting could be held this year in London without any attempt at large organization or elaborate entertaining. Dr. J. A. MacDonald, chairman of the council, said that the main object would be to bring together workers from at home, the Dominions and the United States to garner knowledge and ideas from those who had studied war medicine and surgery. Lieut.-Gen. Sir John Goodwin thought that such a congress was most desirable. Much scientific work of the highest value had been done during the war, and the results were now being analyzed. It would be an immense advantage that they should be examined. All possible facilities would be given to assemble research workers from the forces overseas. Col. A. M. Whaley, United States liaison medical officer with the War Office, welcomed the idea on behalf of the American medical officers serving in Europe. Approval was also expressed by representatives of the Canadian, Australian and New Zealand medical service. All agreed that the meeting would be valuable in crystallizing the knowledge gained during the war. In view of the approaching departure of many medical officers, it was felt that the meeting should be held as soon as possible. It was provisionally agreed that the meeting should be held early in April and should last two or three days.

Industrial Fatigue

A research board has been appointed by the Department of Scientific and Industrial Research and the Medical Research Committee jointly to consider and investigate the relations of hours of labor and of other conditions of employment, including methods of work, to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers. The duty of the board will be to initiate, organize, and promote by research, grants or otherwise, investigations in different industries with a view to finding the most favorable hours of labor, spells of work, rest pauses and other conditions applicable to the various processes according to the nature of the work and its demands on the worker. For these investigations the board looks forward to receiving the help of employers and workmen in the industries which are studied, and in appropriate cases representatives of both will be invited to serve as temporary members of the board. The board includes Dr. C. S. Sherrington, F.R.S., professor of physiology, University of Oxford; Sir Walter Fletcher, F.R.S., secretary, Medical Research Committee; Dr. T. M. Legge, medical inspector of factories; Col. C. S. Myers, F.R.S., director of the Psychological Laboratory, Cambridge, and some directors of large firms.

Standard Illumination and Vision Testing

The Council of British Ophthalmologists appointed a committee consisting of eminent ophthalmologists and physicists to determine standards of illumination for Snellen's test types for distant vision. The committee has now issued an important report. The effect on visual acuity of variations in the illumination of test objects has been the subject of a series of careful investigations for many years. Two chief facts emerge: 1. There is a rapid rise in acuity as the illumination is increased from zero up to about two "foot candles" (one foot candle is the illumination received from a source of one candle power falling perpendicularly on a surface at a distance of one foot from the source). 2. Above three foot candles there is scarcely any appreciable rise in acuity. The results obtained by different observers are not entirely concordant, the discrepancies being attributable to variations in the test object: contrast, size of pupil, etc. For clinical purposes it appears to be sufficiently accurate to regard the results obtained with an illumination of three foot candles or more as valid and comparable under the ordinary conditions of clinical testing. But this minimum is by no means always insured in testing for military or other public services. Apart from the fact that the test types often do not conform to Snellen's criteria, they are frequently dirty, thus diminishing contrast, are varnished, thus giving rise to disturbing direct reflection of light, and are viewed under great variations of daylight, in rooms often ill suited for the purpose. It is possible to lay down precise and simple rules for the efficient illumination of test types. Two ordinary 20 watt tungsten lamps with straight filaments are fixed vertically 15 inches in front of the plane of the test card, one on each side at a horizontal distance of 12 inches from the vertical plane normal to and bisecting the card. One lamp is placed higher than the other, one being opposite the junction of the upper and middle thirds of the card, the other opposite the junction of the middle and lower thirds. Opaque, nonreflecting screens are fitted, so as to prevent direct light from the lamps reaching the candidate's eye. With new lamps the illumination on the test types will be of the order of ten foot candles. The ordinary variations of current, deterioration of lamps, and the darkening of the test card with age will not reduce the brightness of the test card so illuminated to a value less than that of a perfectly white surface receiving an illumination of three foot candles.

Marriages

Edward W. Northcutt, Lieut., M. C., U. S. Army, Torrington, Ky., on duty with the American Expeditionary Forces in France, to Miss Mariet Struts of Marinette, Wis., at the Base Hospital, Venes, France, Dec. 20, 1918.

Harry B. Burne, Lieut., M. C., U. S. N. R. F., on duty at the Naval Training Station, Great Lakes, Ill., to Miss Ethel Smith, of Iowa City, Ia., at Waukegan, Ill., February 7.

Walter Armstrong Noble, Lieut., M. C., U. S. Army, St. Mary's, O., to Miss Mildred L. Conner, of Berlin Heights, O., February 4.

Norman Edward Ditman, New York City, to Miss Grace E. Cumnock of Lowell, Mass., February 22.

Otto Emil Prellwitz, to Miss Wilhelmina Louise Klappert, both of New York City, Dec. 21, 1918.

Deaths

David Alexander Hodghead ⊕ San Francisco; Bellevue Hospital Medical College, 1884; aged 61; dean and professor of obstetrics and diseases of children in the College of Physicians and Surgeons, San Francisco; formerly president and secretary of the San Francisco Clinical Society, and secretary of the Medical Society of the State of California; editor of the Pacific Medical Journal from 1889 to 1892 and from 1898 to 1904; formerly superintendent of the City and County Hospital of San Francisco; died in San Francisco, February 5, from pneumonia following influenza.

John Ravenswood Hicks ⊕ **Major, M. C., U. S. Army,** Staten Island, N. Y.; University of Maryland, Baltimore, 1893; aged 46; ophthalmic surgeon to St. Vincent's Hospital of the Bureau of Richmond, New Brighton; acting assistant surgeon U. S. Army from 1902 to 1906, with service in the Philippine Islands; on duty with the 302d Tank Corps, American Expeditionary Forces; died in France, January 3.

William Stanton Gleason ⊕ Newburgh, N. Y.; New York University, New York City, 1886; aged 58; a specialist on internal medicine; president of the Medical Society of the State of New York in 1915; a Fellow of the New York Academy of Medicine; senior attending physician to St. Luke's Hospital, and consulting physician to the Highland Hospital; died at his home, February 3, from nephritis.

George Pierce, Upper Montclair, N. J.; Johns Hopkins Medical School, Baltimore, 1907; aged 35; at one time a member of the Medical Society of New Jersey and instructor in urology in Johns Hopkins Hospital, Baltimore; a research chemist for the Colgate manufacturing plant, Jersey City, N. J.; died at his home, February 4, from injuries received in an explosion of chemicals, the day before.

Charles Hubart Lovewell, Chicago; University of Michigan, Ann Arbor, 1871; aged 70; a member of the Illinois State Medical Society; a pioneer practitioner of Englewood, where he located in 1875; for many years local surgeon of the Lake Shore and Rock Island System; a member of the town of Lake school board from 1888 to 1890; died at his home, February 9, from cerebral hemorrhage.

James H. Wilson ⊕ Dover, Del.; University of Pennsylvania, Philadelphia, 1867; aged 76; secretary of the Medical Society of Delaware, Examining Board; president of the State Medical Society for several years; local surgeon for the Pennsylvania System since 1874; a member of the board of trustees of the Delaware State Hospital, Farnhurst; died at his home, February 1.

William Shorter Bull ⊕ **Lieut., M. C., U. S. Army,** Irvington, N. J.; New York Homeopathic Medical College, New York City, 1914; aged 32; on duty with the 114th Infantry, Twenty-Ninth Division, American Expeditionary Force; while crossing the River Meuse, France, on a temporary bridge under fire, Oct. 11, 1918, was instantly killed by the explosion of a shell.

Samuel S. Washburn, Lafayette, Ind.; University of Louisville, Ky., 1861; aged 79; a member of the Indiana State Medical Association; a veteran of the Civil War, in which he served as assistant surgeon of the Sixteenth Indiana Volunteer Infantry; for eighteen years a member of the Indiana Council; a member of the City Board of Health; died at his home, February 4.

Alba Gustavus Walker ⊕ **Capt., M. C., U. S. Army,** Houlton, Me.; College of Physicians and Surgeons, Boston, 1902; aged 43; who was honorably discharged from the service, Nov. 30, 1918; is reported to have died, February 4, in Edmundston, N. B., from the effects of poison, self-administered, it is believed, with suicidal intent.

Martin Maximilian Holzman ⊕ **Lieut., M. C., U. S. Army,** New York City; College of Physicians and Surgeons in the City of New York, 1915; aged 27; assistant attending genito-urinary surgeon at the West Side Hospital, New York City; on duty at Fort Oglethorpe, Ga.; died, Oct. 28, 1918, from acute bronchopneumonia.

Frederick Arthur Henderson ⊕ **Lieut., M. C., U. S. Army,** Kokomo, Ind.; Jefferson Medical College, 1912; aged 32; who entered the Army in August, 1917, and was on duty at Fort Benjamin Harrison, Ind., and later at Camp Zachary Taylor; died in Fort Bayard, N. M., Nov. 30, 1918, from pulmonary tuberculosis.

John Groat Corson ⊕ **Lieut., M. C., U. S. Army,** Binghamton, N. Y.; University of Syracuse, N. Y., 1915; aged 27; who had been on duty with a medical detachment of the British E. F. in France, and was thence invalided to England; died in a hospital in London, Oct. 23, 1918, from lobar pneumonia.

William Charles Griggs ⊕ Philadelphia; New York University, New York City, 1890; aged 51; for several years a missionary of the American Baptist Missionary Union in Burmah; a resident of Philadelphia for thirteen years; died suddenly in the Misericordia Hospital, Philadelphia, February 3.

Benjamin Franklin Currie, Burke, Texas; University of Texas, Galveston, 1911; aged 30; a member of the State Medical Association of Texas; formerly acting assistant surgeon U. S. P. H. S., with station at Fort Stanton, N. M.; died at San Angelo, Texas, January 3, from pulmonary tuberculosis.

Noah Norman McFarland ⊕ **Lieut., M. C., U. S. Army,** Memphis, Tenn.; University of Tennessee, Nashville, 1913; aged 28; died in Camp Greene, Charlotte, N. C., Dec. 16, 1918, from the effects of incised and lacerated wounds of either side of the neck, severing both jugular veins.

Oscar Gilbert Smith, New York City; College of Physicians and Surgeons in the City of New York, 1854; aged 88; a fellow member of the New York Academy of Medicine since 1866; a charter member of the Medical Society of the Greater New York; died at his home, February 4.

Ingvald Martinius Josephson Hotvedt ⊕ Muskegon, Mich.; University of Minnesota, Minneapolis, 1899; aged 46; a specialist in surgery; a linguist of note, and for several years a missionary in China; was shot and killed in his office, February 10, by an angered or insane patient.

Erlo Elsten Kennedy, Denver; Baltimore Medical College, 1905; aged 38; secretary of the Colorado State Board of Health; for two years a member of the House of Representatives, and chief clerk of that body; died at his home, February 4, from influenza.

Knight William Field ⊕ **Lieut., M. C., U. S. Army,** Dallas, Texas; Tulane University, New Orleans, 1900; aged 42; formerly on duty at Camp Hancock, Augusta, Ga., and later with the American Expeditionary Forces in France; died in France, Oct. 11, 1918.

Thomas J. Horsley ⊕ Mangum, Okla.; Barnes Medical College, St. Louis, 1891; aged 46; a specialist in diseases of the eye, ear, nose and throat; secretary of the Greer County, Okla., Medical Society; was found dead in his office, January 9, from heart disease.

Burton Paul Bradley ⊕ **Lieut., M. C., U. S. Army,** Rome, Ga.; Emory University, Atlanta, Ga., 1915; aged 25; assigned to duty with field hospital, No. 347, Sanitary Train 312, Camp Pike, Little Rock, Ark.; died Oct. 16, 1918, from acute bronchial pneumonia.

Daniel MacDonald, New York City; New York Homeopathic Medical College, New York City, 1912; aged 58; professor of pathology in Fordham University, who formerly occupied a similar position in the Woman's College; died at his home, February 5, from Bright's disease.

Harmar D. Moore, New Lexington, Pa.; Jefferson Medical College, 1873; at one time a member of the Medical Society of the State of Pennsylvania; for fifty years a practitioner of Somerset County and Pittsburgh; died at his home, February 7.

George C. Watson, New Concord, Ohio; Starling Medical College, Columbus, Ohio, 1889; aged 52; postmaster of New Concord for twelve years and cashier of the First National Bank; died at his home, January 28, from carcinoma.

Benjamin George Jones ⊕ **Lieut., M. C., U. S. Army,** Oklahoma City, Okla.; University of Oklahoma, Norman, and Oklahoma City, 1917; aged 26; on duty at Newport News, Va.; died Oct. 17, 1918, from double lobar pneumonia.

Lumus C. Newton, Detroit, Mich.; College of Physicians and Surgeons, Baltimore, 1880; aged 64; formerly a member and president of the Detroit School Board; died in Grace Hospital, Detroit, January 31, from acute nephritis.

Leon Hirsch ⊕ Pittsburgh, Jefferson Medical College, 1896; aged 42; also a graduate of the Pittsburgh College of Pharmacy; a member of the staff of Passavant Hospital, Pittsburgh; died recently in Mercy Hospital, Pittsburgh.

Valentin T. Guanio y Tinio, Gapan, P. I.; University of the Philippines, Manila, 1915; is reported to have died recently from bronchopneumonia.

⊕ Indicates "Fellow" of the American Medical Association.

Jonas M. O. Tufty ⊕ Duluth, Minn.; University of Christiania, Norway, 1885; aged 61; for thirty years a practitioner of Duluth, and for two terms a member of the library board; died at his home, January 4, from heart disease.

Harry Robinson Parker ⊕ **Lieut., M. C., U. S. Army,** Williamson, W. Va.; University of Vermont, Burlington, 1907; aged 34; on duty at Hazelhurst Field, Mineola, L. I.; died Dec. 23, 1918, from lobar pneumonia.

Stephen James Hawes ⊕ **Lieut., M. C., U. S. Army,** Dover, N. C.; University College of Medicine, Richmond, Va., 1911; aged 32; on duty at Camp Jackson, Columbia, S. C.; died Dec. 14, 1918, from bronchial pneumonia.

Bryant Carr Rudder ⊕ **Lieut., M. C., U. S. Army,** Walker Springs, Ala.; Universities of Nashville and Tennessee, Nashville, 1911; aged 32; on duty at Fort Oglethorpe, Ga.; died Oct. 14, 1918, from bronchopneumonia.

Samuel G. Crawford, Sedalia, Mo.; Kentucky School of Medicine, Louisville, 1880; aged 77; colonel of the Forty-Ninth Kentucky Volunteer Infantry, during the Civil War; died at his home, January 31.

Robert T. Connally, Mena, Ark. (license, Arkansas, 1903); aged 74; at one time a member of the Arkansas Medical Society; a Confederate veteran; died at the home of his son, in Rocky, Ark., January 30.

Hugh Zollicoffer Browne ⊕ **Lieut., M. C., U. S. Army,** Kosciusko, Miss.; Tulane University, New Orleans, 1911; aged 32; on duty at Fort Oglethorpe, Ga.; died Oct. 22, 1918, from acute bronchial pneumonia.

Glenn Elbert Haughey ⊕ **Lieut., M. C., U. S. Army,** Wakeeney, Kan.; Kansas Medical College, Topeka, 1908; aged 34; on duty at Fort Oglethorpe, Ga.; died Oct. 24, 1918, from acute bronchopneumonia.

Matthew Joseph Foley ⊕ **Lieut., M. C., U. S. Army,** New Haven, Conn.; Eclectic Medical Institute, Cincinnati, 1917; aged 27; died in Camp Meade, Admiral, Md., Oct. 10, 1918, from bronchopneumonia.

John Hamlin Traylor ⊕ **Capt., M. C., U. S. Army,** Cuero, Tex.; Vanderbilt University, Nashville, Tenn., 1909; aged 31; on duty at Camp McArthur, Tex.; died Oct. 26, 1918, from acute meningitis.

James Harvey Todd, Major, C. A. M. C., Toronto, Ont.; University of Toronto, Ont., 1905; aged 35; on duty at Quebec; died in that city, Oct. 17, 1918, from pneumonia following influenza.

John Richard Fischer ⊕ **Lieut., M. C., U. S. Army,** Utica, N. Y.; University and Bellevue Hospital Medical College, 1917; aged 26; died Oct. 31, 1918, from chronic pulmonary tuberculosis.

James S. Kugler, Sharon, Pa.; Eclectic Medical College of Pennsylvania Philadelphia, 1869; aged 89; said to have been the oldest practitioner of Mercer County; died at his home, January 28.

Charles Francis Cropp ⊕ **Lieut., M. C., U. S. Army,** Independence, Ore.; Willamette University, Salem, Ore., 1913; age 33; died January 6, from bronchopneumonia following influenza.

Orin Worrett Robe ⊕ **Capt., M. C., U. S. Army,** Portsmouth, O.; Starling Medical College, Columbus, O., 1891; aged 50; a specialist in surgery; died Oct. 25, 1918, from chronic myocarditis.

Murat Halstead Scott ⊕ **Lieut., M. C., U. S. Army,** Harrison, O.; University of Cincinnati, 1914; aged 28; on duty at Fort Oglethorpe, Ga.; died Oct. 19, from lobar pneumonia.

David D. Talbott, Lewistown, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1864; aged 81; was found dead in his office, January 18.

Orange C. Darling, Riverside, Calif.; Eclectic Medical Institute, Cincinnati, 1882; aged 62; died in the Loma Linda Sanitarium, January 21.

Alonzo Caldwell Miller, Washington, D, C.; Howard University, Washington, D. C., 1894; aged 47; died at his home, January 20.

John H. Kern ⊕ St. Louis; Missouri Medical College, St. Louis, 1894; aged 55; died at his home, January 16, from aneurysm.

Luther T. Cheatham, Louisville (Ky.) Hospital College of Medicine, Louisville, 1891; aged 49; died at his home, January 16, from pulmonary abscess.

Walter W. Holloway, Lexington, Ky.; University of Louisville, Ky., 1880; aged 61; died at his home, January 18, from chronic nephritis.

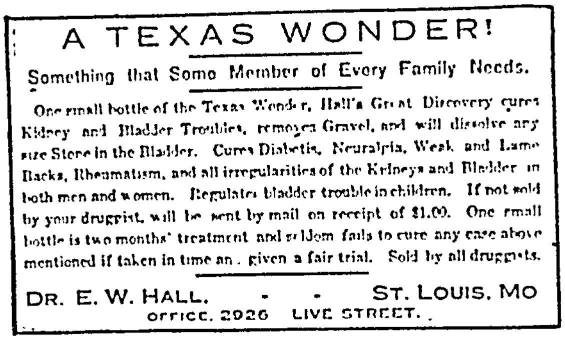
The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MISBRANDED NOSTRUMS

How the Bureau of Chemistry Is Protecting the Public Against "Patent Medicines" Sold Under Fraudulent or Misleading Claims

Hall's "Texas Wonder."—Shipped about April, 1917, by E. W. Hall, St. Louis. Falsely and fraudulently claimed to be a great discovery for kidney and bladder troubles and diabetes, and to dissolve gravel. Condemned, forfeited, and ordered destroyed by the court.—[*Notice of Judgment No. 5957.*]



A TEXAS WONDER!

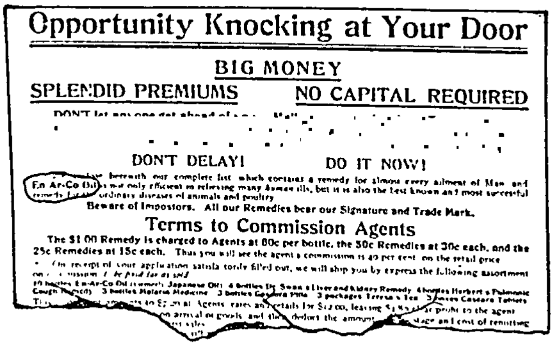
Something that Some Member of Every Family Needs.

One small bottle of the Texas Wonder, Hall's Great Discovery cures Kidney and Bladder Troubles, removes Gravel, and will dissolve any size Stone in the Bladder. Cures Diabetis, Neuralgia, Weak and Lame Backs, Rheumatism, and all irregularities of the Kidneys and Bladder in both men and women. Regulates bladder trouble in children. If not sold by your druggist, will be sent by mail on receipt of $1.00. One small bottle is two months' treatment and seldom fails to cure any case above mentioned if taken in time and given a fair trial. Sold by all druggists.

DR. E. W. HALL. - - ST. LOUIS, MO
OFFICE, 2926 LIVE STREET.

King's Liver and Kidney Alterative and Blood Cleanser.—Shipped in January, 1916, by Chas. A. Ritchey, Chicago. Analysis showed the product to consist essentially of a solution of Epsom salt, aloes, quassia, caramel and oil of sassafras. Falsely and misleadingly represented as to composition, and fraudulently represented as a remedy for erysipelas, syphilis, female weakness, "cancerous humors," etc. Fine, $200 and costs.—[*Notice of Judgment No. 5985.*]

En-Ar-Co Oil.—Shipped in January, 1917, by the National Remedy Co., New York City, under the name of Chas. E. Crittenden Co. Analysis showed the preparation to be essentially a water-alcohol solution of amyl and ethyl alcohols, acetone, capsicum extractives, a saffrol-containing oil, a light mineral oil, and a fixed vegetable oil. Falsely and fraudulently represented as a remedy for asthma, rheumatism, snake bites, corns and bunions, chicken cholera, hog cholera, lockjaw, spavin and heaves. Fine, $50.—[*Notice of Judgment No. 6002.*] This preparation was investigated by the Propaganda Department and analyzed by the A. M. A. chemical laboratory in 1911, and exposed in The Journal, July 29, 1911.



Opportunity Knocking at Your Door

BIG MONEY

SPLENDID PREMIUMS NO CAPITAL REQUIRED

DON'T let any one get ahead of [illegible]

DON'T DELAY! DO IT NOW!

[illegible] herewith our complete list which contains a remedy for almost every ailment of Man and [illegible] En-Ar-Co Oil is not only efficient in relieving many human ills, but it is also the best known and most successful remedy for the ordinary diseases of animals and poultry

Beware of Impostors. All our Remedies bear our Signature and Trade Mark.

Terms to Commission Agents

The $1.00 Remedy is charged to Agents at 60c per bottle, the 50c Remedies at 30c each, and the 25c Remedies at 15c each. Thus you will see the agent's commission is 40 per cent on the retail price.

On receipt of your application satisfactorily filled out, we will ship you by express the following assortment on commission, to be paid for as sold:

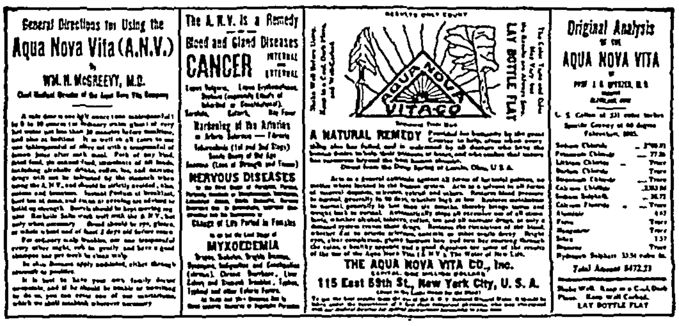
10 bottles En-Ar-Co Oil (formerly Japanese Oil), 4 bottles Dr. Swan's Liver and Kidney Remedy, 4 bottles Herbert's Pulmonic Cough Remedy, 3 bottles Malaria Medicine, 3 bottles Cascara Pills, 3 packages Teresa's Tea, 3 boxes Cascara Tablets

This assortment amounts to $7.20 at Agents' rates and retails for $12.00, leaving $4.80 clear profit to the agent [illegible] on arrival of goods and then deduct the amount [illegible] postage and cost of remitting [illegible]

Lindsey's Improved Blood Searcher.—Shipped in February, 1916, by the W. J. Gilmore Drug Co., Pittsburgh. Analysis showed the preparation to be an alcohol-water solution of sugars, salicyclic acid, aromatic oils, plant extractives, and calcium salts, with indications of guaiac. Falsely and fraudulently represented as a blood purifier and a remedy for diseases of women, malaria, cancer, sore eyes, piles, etc. Fine, $50.—[*Notice of Judgment No. 5973.*]

White Eagle's Indian Oil Liniment.—Shipped in January, 1917, by Aaron P. and Caroline McCarty, doing business as the White Eagle Medicine Co., Piqua, Ohio. Analysis showed the product to consist essentially of kerosene and a saponifiable oil, together with a small amount of oil of sassafras. Falsely and fraudulently represented to be a cure for diphtheria, hay-fever, goiter, deafness, rheumatism, etc. Fine, $50 and costs.—[*Notice of Judgment No. 6090.*]

Aqua Nova Vita.—Shipped in December, 1914, by the Aqua Nova Vita Co., Easton, Pa. Falsely and fraudulently claimed to be an effective remedy in cancer, syphilis, hay-fever, hardening of the arteries, tuberculosis, locomotor ataxia, Bright's disease, diabetes, etc. Fine, $75.—[*Notice of Judgment No. 6136.*]


General Directions for Using the
Aqua Nova Vita (A.N.V.)
by
WM. H. McSREEVY, M.D.

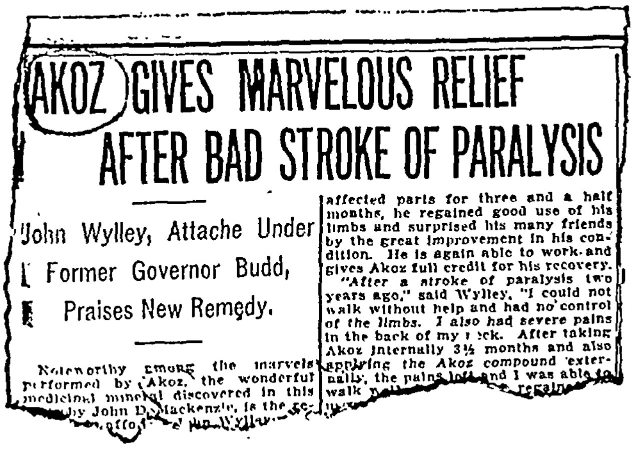
The A.N.V. Is a Remedy
Blood and Gland Diseases
CANCER
Hardening of the Arteries
NERVOUS DISEASES
Change of Life Period in Females
MYXOEDEMIA

AQUA NOVA VITA CO
LAY BOTTLE FLAT
A NATURAL REMEDY
THE AQUA NOVA VITA CO., Inc.
115 East 59th St., New York City, U. S. A.

Original Analysis
of the
AQUA NOVA VITA
Total Amount 5472.21
LAY BOTTLE FLAT

Brown's New Consumption Remedy.—Shipped in March, 1916, by David H. Brown, trading as the Magnolia Remedy Co., St. Augustine, Fla. Analysis showed the product to be a dark brown emulsion, containing essentially creosote, phosphoric acid, sodium phosphate, Epsom salt, glucose, sugar and a trace of an alkaloid. Falsely and fraudulently represented as a remedy for consumption, pneumonia, la grippe, etc. Fine, $50 and costs.—[*Notice of Judgment No. 6143.*]

Akoz.—Consigned in August, 1917, by the Natura Co., San Francisco, to a concern in Bilbao, Spain. There were various products in the consignment, one being "Akoz Ointment," represented as "A Natural Remedy for Skin Diseases . . . Hemorrhoids," etc.; another was "Akoz Rectal Suppositories," for hemorrhoids, ulcerations, etc.; still another was "Akoz Powder"[1] for "kidney troubles," rheumatism, dyspepsia, etc.; "Akoz Dusting Powder," for eczema, chronic ulcers, acne, etc.; "Akoz Plaster," for rheumatism, neuritis, pain in back, etc.; "Akoz Compound," for rheumatism, neuralgia, etc. The claims for all of these products were declared to be false and fraudulent, as they contained no ingredients or combination of ingredients capable of producing the therapeutic effects claimed. The court entered judgment of condemnation and forfeiture, and ordered that the stuff should be destroyed.—[*Notice of Judgment No. 6026.*]


AKOZ GIVES MARVELOUS RELIEF AFTER BAD STROKE OF PARALYSIS

John Wylley, Attache Under Former Governor Budd, Praises New Remedy.

Noteworthy among the marvels performed by Akoz, the wonderful medicinal mineral discovered in this [illegible] by John D. Mackenzie, is the re- [illegible]

affected parts for three and a half months, he regained good use of his limbs and surprised his many friends by the great improvement in his condition. He is again able to work and gives Akoz full credit for his recovery.

"After a stroke of paralysis two years ago," said Wylley, "I could not walk without help and had no control of the limbs. I also had severe pains in the back of my neck. After taking Akoz internally 3½ months and also applying the Akoz compound externally, the pains left and I was able to walk [illegible] regained

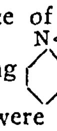
Fenner's Kidney and Backache Remedy.—Shipped in January, 1913, by the M. M. Fenner Co. Analysis showed the stuff to contain over 11 per cent. alcohol, potassium acetate and methyl salicylate. Falsely and fraudulently represented as a cure for inflammation of the kidneys, catarrh of the bladder, heart disease, leukorrhea, etc. Fine, $25.—[*Notice of Judgment No. 6119.*]

Wine of Chenstohow.—Shipped in March, 1915, by A. Skarzynski & Co., Buffalo. Analysis showed the stuff to contain over 17 per cent. alcohol, nearly 10 per cent. reducing sugars, and small amounts of emodin. Falsely and fraudulently claimed to be a remedy for stomach affections, and a cure for general debility, loss of strength, piles, etc. Fine, $75.—[*Notice of Judgment No. 6125.*]

Correspondence

REPORT OF A CASE OF CYANOSIS AT CAMP JACKSON, S. C., DUE TO POISONING FROM SHOE DYE

To the Editor:—Recently (The Journal, Feb. 8, 1919, p. 395) I reported a series of seventeen cases of cyanosis due to methemoglobinemia caused by poisoning by a shoe dye. All these cases occurred at Camp Johnston, Fla. Seven of the seventeen men gave a history of having had their shoes or their puttees dyed the day they became cyanotic, or of having worn newly dyed shoes and puttees on that day. One other man who had been cyanotic several weeks before he was interviewed asserted that his shoes were dyed after he left the hospital. Six of the other nine men who had gone overseas and whose history could not be obtained at the last writing have been heard from and have given a positive history. The evidence against the shoe dye was convincing, both from the experimental poisoning of white mice and of several men volunteers, and from the chemical examination of the dye, which showed the presence of nitrobenzene or some compound containing the grouping



. Most of the cases of poisoning at Camp Johnston were in recently commissioned student officers who were discarding their canvas puttees for leather puttees worn by officers. In order to make the light colored tan shoes furnished by the Qua[illegible] master's Department match the dark colored leath[illegible] worn by officers, the shoes and sometimes bo[illegible] puttees were dyed by a special brown oil[illegible] all but one of the Camp Johnston cases th[illegible] at a certain boot-black stand in Jacksonvil[illegible] however, the dye was bought of a well kno[illegible] Jacksonville, which has branch stores in all t[illegible] a fact which made me curious to know whether [illegible] of methemoglobinemia had not occurred at other [illegible]

Through the kindness of Major W. W. Her[illegible] chief of the medical service at Camp Jackson, S. C. [illegible] me of an unexplained case of cyanosis at the base [illegible] at Camp Jackson, and who investigated the case at my [illegible] with reference to possible poisoning from a shoe dye [illegible] able to furnish the history:

> Lieut. H. R. H. D. C., admitted to the officers' ward of the hospital of Camp Jackson, S. C., July 25, 1918, had been told [illegible] friend that his face and lips were blue. A little later he had nausea and headache, but did not feel bad enough to go to bed. Later his friends insisted that he consult a physician on account of his strange color. At 9:30 p. m. on admission to the hospital there were headache, nausea, vomiting and extreme cyanosis. The pulse was frequent, weak, and of low pressure. The heart sounds were feeble. The skin was very cyanotic, cold and sweating. The patient was exhausted, vomited, and complained of headache. The heart rate was 100 and regular. There

of th[illegible] pounds advised by Laboratory, 1916.

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[1] An examination in the A. M. A. Chemical Laboratory showed [illegible]owder contained 2.2 per cent. of lead sulphate. In view [illegible] results which have followed the internal use of com[illegible] small amounts of lead, the Natura Company was [illegible] o[illegible]ratory of the finding (Rep. A. M. A. Chemical [illegible]3).

tuberculosis.

⊕ Indicates "Fellow"

was a slight systolic murmur over the precordia, not transmitted. There were a few sibilant and subcrepitant râles at the right upper anterior chest, with relative dulness at the angle of the right scapula. The rest of the physical examination was negative. On the following morning the patient felt very much better. The cyanosis disappeared in about twelve hours. No chemical tests were made. The diagnosis was "heat exhaustion and acute indigestion."

Jan. 8, 1919, Major Herrick received the following letter from the patient, who had been honorably discharged and was practicing dentistry in West Virginia:

"I am pleased to say that I *did* use a dye on my shoes and puttees the evening before I was taken to the base hospital at Camp Jackson. I do not know the name of the dye I was using, but it was bought from the 317th F. A. Canteen."

It is evident from the report of these cases that the use of russet shoe dyes is dangerous; even those dyes that are "guaranteed odorless" can produce marked cyanosis. Shoes and puttees should not be worn for three or four days after they have been dyed, and they should never be dyed while worn. The orange colored cleaning liquids and the russet pastes for polishing are harmless and may be safely and freely used.

RICHARD E. STIFEL, M.D.,
Camp Johnston, Jacksonville, Fla.
Captain, M C., U. S. Army; Chief of Laboratory, Base Hospital.

"METHEMOGLOBINEMIA DUE TO POISONING BY SHOE DYE"

To the Editor:—The article in THE JOURNAL, February 8, p. 395, on "Methemoglobinemia Due to Poisoning by Shoe Dye" is interesting, but there are some facts which make it appear doubtful that Dr. Stifel is correct in his judgment as to the toxic agent. I have had occasion to examine considerable numbers of shoe dyes, and in all cases have found nitrobenzene present in large percentages. It is, in fact, extremely difficult to prepare a satisfactory commercial product of this type without the use of nitrobenzene in substantial quantity. For that reason it seems highly probable that if this were truly the cause of the symptoms described in Dr. Stifel's paper, there would have been a great number of similar cases reported. This material has been used in large quantities for many years and under conditions just as likely to produce poisoning as those described by Dr. Stifel. Is it not possible that the symptoms were due, not to nitrobenzene itself, but to some by-product accompanying it, such as the highly toxic tetranitromethane, which is frequently produced in the manufacture of trinitrotoluene?

CARL S. MINER, Chicago.

STATISTICAL STUDY OF THE INFLUENZA EPIDEMIC

To the Editor:—The American Public Health Association, Vital Statistics Section, appointed a Committee on Statistical Study of the Influenza Epidemic, Nov. 20, 1918. Under the auspices of this committee, a meeting of the state and municipal registrars in the Eastern states was held at the Hygiene Laboratory of the University of Pennsylvania, Philadelphia, November 29 and 30. At this initial conference there were present also several private statisticians interested in the public health statistics of the epidemic and the results to be derived from study of such data. A series of suggestions was made up, mimeographed and sent to statistical and public health workers for criticism. At the meeting of the Vital Statistics Section in Chicago, December 11, the committee submitted a report on its activities and asked for authority to continue further inquiry into a program of statistical study of the epidemic. The section authorized the continuance of the committee and provided that representatives of the United States Bureau of the Census, of the United States Army and Navy, of the United States Public Health Service, of the state and municipal health boards, and the various statistical, sociological, actuarial and economic associations be represented thereon. The committee was specifically authorized to act in an advisory capacity, first, to outline the various sources of data and the minimum standards of tabular and registration practice to be observed by several organizations providing data, and, second, to bring in recommendations on the pathometric or mathematical analysis of published epidemic data. The committee was divided into four subcommittees:

SUBCOMMITTEE A.—*Registration and Tabulation Practice of the Federal Departments:* William H. Davis, M.D., chief statistician, Division of Vital Statistics, Bureau of the Census, chairman; Richard C. Lappin, recorder.

SUBCOMMITTEE B.—*Registration and Tabulation Practice of the State Departments and Commissions:* Otto R. Eichel, M.D., director, Division of Vital Statistics, New York State Department of Health, Albany, chairman; Edwin W. Kopf, recorder.

SUBCOMMITTEE C.—*Registration and Tabulation Practice of Municipal Boards of Health and of Private Public Health Agencies:* Charles Scott Miller, M.D., Philadelphia Department of Health, chairman.

SUBCOMMITTEE D.—*Pathometry* (mathematical analysis and interpretation) *of the Epidemic:* Charles C. Grove, Ph.D., Columbia University, chairman; Arne Fisher, F. S. S., recorder.

Mr. E. W. Kopf was delegated to act as chairman of the general committee and to coordinate the work of the several subcommittees. The General Committee on Influenza Statistics of the Vital Statistics Section was authorized to cooperate in statistical matters with the Influenza Reference Committee of the entire association. (See "Influenza Bulletin: A Working Program," American Public Health Association, Boston, Dec. 13, 1918.)

At the Washington meeting of Subcommittee A, the subjects taken up were: estimates of population; the obtaining of estimates of army and navy populations by five year age periods, through random sampling if necessary, but by direct tabulation of army and navy enlistment records if possible; the causes of death reported during the epidemic, to be classified in accordance with the Manual of the International List of Causes of Death and the Index of Joint Causes as published by the Bureau of the Census; infant mortality, studied in such a manner as to show what part of this mortality was probably due to birth mortality arising out of influenzal illness of the mother and to the factor of neglect; norms of mortality during September, October and November.

It was also indicated that it was unwise to draw any conclusions from statistics of variations in bacterial flora at various stages in the epidemic or in different localities, unless it was shown that all laboratory conditions had been properly controlled. The army was requested to supply statistics as to influenzal sickness classified by five year age periods, by date of onset, by duration of illness in days, and by principal complications, showing fatality or lethal rates for 100 completed cases.

Subcommittee B considered the more intimate statistics of the epidemic in the states. The subcommittee pointed out that in certain cities and for certain states valuable data were available in the files which would lead to the determination of the norm of mortality during the fall and winter months of the year. The social statistics of the epidemic were emphasized. It was urged that statistics of the effect of the epidemic on the family should be collected. State and municipal governments were urged to make preparations necessary for the proper statistical study of the epidemic data.

The Subcommittee on Municipal Statistics discussed chiefly the available data in the files of maternity clinics and visiting nursing associations. It was indicated that thorough study of these records would bring out some of the important facts on the obstetric data of the epidemic.

The Subcommittee on Pathometry has outlined for itself the problems of mathematically testing and graduating the crude compiled data for norms of infant and adult mortality. The subcommittee has in mind the frequency curves of mortality from the several important causes of death during the fall and winter months of the year, especially the curves for infant mortality considered as (*a*) "birth mortality" and (*b*) "true infantile mortality." By means of modern analytic methods it was aimed to determine the true "excess mortality" during the epidemic. It was planned also to fit various curves to the observed epidemic data and to compute the equations and the constants of the distributions in the several areas under observation (mean, mode, dispersion, skewness, "excess").

The Subcommittee on Pathometry also anticipated that it could determine by delicate mathematical tests the *probable* date of the beginning, "peak" and ending of the several waves or phases of the epidemic in the various communities; and possibly, the approximate differential equations representing the several recurrences or recrudescences of the epidemic could be established.

The methods of higher analysis applied to the influenza epidemic data can be of service to preventive medicine in the study of other diseases. The profession of statistics is confronted with an opportunity for unparalleled service to the medical sciences, among them preventive medicine.

Edwin W. Kopf, New York,
General Chairman, Committee on Statistical Study of the Influenza Epidemic, Section on Vital Statistics, American Public Health Association.

EYELASH IN THE CANALICULUS

To the Editor:—I note in The Journal, January 25, p. 275, the report of "A Unique Eye Case," an eyelash being found lodged in the canaliculus. I have had at least two similar cases. In each, there was experienced sudden irritation of the eye, and inspection revealed a lash partly protruding from the canaliculus. This was readily drawn out, with complete and immediate relief.

Edwin A. Clarke, M.D., Akron, Colo.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OINTMENT FOR SCABIES—REMOVAL OF WARTS BY RADIUM —TRAGACANTH CREAM

To the Editor:—1. Please give a good prescription for scabies. 2. Please describe the best way to remove warts from the hands without electricity. 3. What treatment would you advise for a woman whose skin is dry but who develops a rash on the face, and whose eyes swell when the ordinary face creams are used? D. W. A.

Answer.—1. A good prescription is precipitated sulphur, Peruvian balsam, and green soap, each from 20 to 30 grains; zinc oxid, 2 drams, and petrolatum to make an ounce. This is rather a weak ointment, but is not likely to produce irritation like a full sulphur ointment. Patients should have a bath and a good scrub with soap and water at bedtime, and the ointment should be rubbed into the affected parts thoroughly. This may be done every night or every other night, according to the amount of irritation that occurs, for three or four applications. The dermatitis that may occur from it can be treated by bland ointments, such as a zinc oxid ointment containing 2 drams zinc oxid to 1 ounce petrolatum.

2. Among many other methods, warts may perhaps best be treated by radium. The radium is applied by applicator to the wart a sufficient length of time to produce a dry dermatitis. How long this is depends on the amount of radium in the applicator.

3. The following tragacanth lotion might be utilized:

Tragacanth	80 grains
Glycerin	1 ounce
Boric acid	½ ounce
Oil of bergamot	20 drops

Water to make a pint.

Dissolve the tragacanth and glycerin in the water by warming gently. Cool and add the oil of bergamot.

PREVENTION OF HEADACHE FOLLOWING LUMBAR PUNCTURE

To the Editor:—Do you know of any method of preventing the intense headache that not infrequently follows lumbar puncture for diagnostic purposes? Treating a large number of cases of syphilis, and seeing quite a number for other men, I have frequent occasion to do lumbar punctures. In a considerable percentage of these cases, even when every precaution is taken and the patient *remains* in bed for twenty-four hours after the puncture, a very severe headache follows. This headache may last from two or three to five or six days. It is immediately relieved if the patient takes a recumbent position, but starts again on arising. It is sometimes accompanied by vomiting. I have found that atropin will usually stop the vomiting, but as yet have found nothing that has any effect on the headache except lying down.

A few years ago—noting that I never have this symptom following Swift Ellis treatments (of which I had then done several hundreds) I thought it could be avoided by replacing the fluid removed by autogenous serum. This did not prove true, however, the same number of persons getting the headache as after simple puncture.

I have never to my recollection had the reaction in a case in which the spinal fluid showed evidence of disease of the nervous system. It is always in the cases in which the fluid is found to be negative.

In the literature of the past few years I have seen only one reference to the condition, and there it was suggested that the patient be kept in bed for twenty-four hours.

Realizing the importance of fluid examination in all cases of syphilis, I am very much interested to know if any one has found a way of preventing this very distressing symptom, or of helping it after it has once developed.

H. Le Baron Peters, M.D., Bridgeport, Conn.

Answer.—The intense headache in question may practically always be prevented if two conditions are rigidly observed: first, to use a needle of small caliber, preferably not exceeding 0.8 or even 0.6 mm. in diameter; second, to keep the patient recumbent for forty hours. By experiment and experience on human beings, Sicard of Paris learned that the puncture in the dura mater does not close under thirty hours and generally requires from thirty-four to thirty-six hours. He believes that the headache is caused not by the trivial amount of fluid taken for examination but by constant seepage through the punctured dura. A neurologist who has followed this advice in handling a large number of cases for nearly five years states that, during that time, he has had only two cases of severe headache following lumbar puncture.

WILDROOT DANDRUFF AND ECZEMA CURE

To the Editor:—Will you please publish under "Queries and Minor Notes" the composition of "Wildroot Dandruff and Eczema Cure" marketed by the Wildroot Chemical Co. of Buffalo, N. Y.?

Wm. S. Robertson, M.D., Charleston, W. Va.

Answer.—The pamphlet, "Cosmetic Nostrums," issued by the Propaganda department of The Journal has the following to say about this product: "This preparation, put on the market by the Wildroot Chemical Company, Buffalo, N. Y., is thus characterized by Dr. Harvey W. Wiley in his book '1001 Tests,' revised edition: 'Contains arsenic, and some phenolic body, probably resorcin; perfumed and colored. The trace of alkaloidal material present was too small for identification. Contains 40 per cent. of alcohol, as declared, and less than one half of 1 per cent. of nonvolatile matter. Claims that it is an herb compound and a positive remedy for eczema and dandruff obviously untenable.'"

BENZYL ALCOHOL

To the Editor:—The following appeared in the Chicago *Tribune*, Feb. 17, 1919:

"Dr. David I. Macht of Johns Hopkins University has discovered a new local anesthetic that is about forty times less toxic than cocain.

"The drug itself—benzyl alcohol, or phenmethylol—is not new, but its properties in producing local anesthesia are in the nature of a complete discovery that is attracting much attention in medical and surgical circles."

What are the facts in the case? Reader, Chicago.

Answer.—The paragraph quoted is correct. While experience alone will tell whether or not the local anesthetic comes up to the expectations of its discoverer, it was deemed of sufficient promise by the Council on Pharmacy and Chemistry to warrant admission to New and Nonofficial Remedies. For a detailed description of benzyl alcohol, see the New and Nonfficial Remedies department of The Journal, Oct. 19, 1918, p. 1313.

Malaria Simulating Rabies.—A. Castellani (*Arch. méd. Belg.*, August, 1918, p. 145) describes an attack simulating rabies in a patient in Colombo, Ceylon, who had malaria. The diagnosis of rabies had been made. At the time Castellani saw him the patient was in an attack apparently of hydrophobia with a temperature of 102 F. The sight of water produced violent spasm of the larynx. An examination of the patient's blood during the paroxysms showed the parasites of malaria. Fifteen grains of quinin by intramuscular injection caused the disappearance of the symptoms of rabies in a few hours. Castellani says it was perhaps a hydrophobic syndrome of the nature of hysteria in a malarial subject, although the patient was not a neuropath and presented none of the stigmata of hysteria.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.

Arizona: Phoenix, April 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

California: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, April 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Pocatello, April 1-2. Sec., Dr. Ray H. Fisher, Rigly.

Illinois: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Indiana: Indianapolis, Feb. 26-28. Sec., Dr. W. T. Gott, 84 State Capitol Bldg., Indianapolis.

Iowa: Iowa City, March 24-26. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Maine: Portland, March 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 1-4. Sec., Dr. T. S. McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

National Board of Medical Examiners: Philadelphia, June 2-7. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

Oklahoma: Oklahoma City, April 8-9. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

California October Examination

Dr. C. B. Pinkham, secretary of the California State Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 21-23, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 34 candidates who took the physician's and surgeon's examination, 19, including 8 osteopaths, passed, and 15, including 8 osteopaths, failed. Four candidates, including 3 osteopaths, were licensed, their marks having been reconsidered and raised to passing grade. Fifty-one candidates were licensed through reciprocity. Two candidates received osteopathic reciprocity licenses, and 2 candidates received drugless healer reciprocity licenses. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Medical Evangelists	(1918)	78.2
College of Phys. and Surg., San Francisco (1918) 75, 77.1, 77.7, 77.8 79.8, 81.1, 81.8.		
Hahnemann Medical College of the Pacific	(1918)	75
Leland Stanford Junior University (1917) 90.2,	(1918)	73.8
Oakland College of Med. and Surg.	(1918)	97.5
FAILED		
College of Phys. and Surg., Los Angeles	(1918)	70.7
College of Phys. and Surg., San Francisco (1918) 54.7, 70.3, 71.4.		
California Eclectic Medical College	(1918)	10*
Hahnemann Medical College of the Pacific	(1918)	60.8
Tufts College Medical School	(1918)	73.8

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross College of Medicine	(1905)	Washington
Denver College of Medicine	(1900)	Utah
American Medical Missionary College (1905) Mich.,	(1905)	Oregon
Chicago College of Medicine and Surgery ..(1910)	(1916)	Illinois
	(1915)	Iowa
College of Phys. and Surg., Chicago	(1897)	Wisconsin
..... (1901) (1906) Illinois; (1907) Washington	(1910)	Iowa
Northwestern University (1892) Illinois; (1903) Ia.;	(1906)	S. Dakota
Northwestern University Woman's School	(1901)	Illinois
Rush Medical College ..(1896) Ohio; (1902) Iowa;	(1904)	Illinois
University of Illinois	(1916)	Ohio
Indiana University	(1911)	Indiana
Tulane University	(1913)	Oklahoma
Baltimore Medical College ....(1901) Vermont;	(1903)	Penna.
College of Phys. and Surg., Baltimore	(1906)	Maryland
Johns Hopkins University	(1913)	New York
Tufts College Medical School (1904) N. Hampshire;	(1906)	Mass.
Ensworth Medical College	(1894)	Missouri
Homeopathic Medical College of Missouri	(1895)	Missouri
Kansas City College of Medicine and Surgery	(1917, 2)	Arkansas
St. Louis College of Phys. and Surg.	(1897)	Indiana
St. Louis Medical College	(1886)	Missouri
St. Louis University	(1913)	Arizona
University Med. College of Kansas City	(1911)	Missouri
John A. Creighton Medical College ....(1909)	(1914)	Nebraska
University of the City of New York	(1895)	New York
University of Buffalo	(1897)	New York
Leonard Medical School	(1906)	Virginia
Cleveland College of Phys. and Surg.	(1897)	Penna.
Cleveland Homeopathic Medical College	(1904)	Missouri
Jefferson Medical College	(1902)	New York
Meharry Medical College	(1913)	Oregon
Universities of Nashville and Tennessee	(1911)	Texas
University of Texas	(1905)	Texas
Trinity Medical College	(1901)	New York
McGill University	(1881)	Arizona
University of Berlin	(1873)	New York
University of Moscow	(1900)	Ohio

* Did not complete the examination.

Montana October Examination

Dr. S. A. Cooney, secretary of the Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 1-3, 1918. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 8 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado ....(1912) 83.2;	(1918)	80.9
Bennett Medical College	(1911)	75.9
Hahnemann Med. Coll. and Hosp of Chicago	(1916)	79.9
Rush Medical College ....(1892) 82.1;	(1918)*	81.5
Cincinnati College of Med. and Surg.	(1891)	75.5
Jefferson Medical College	(1918)	83.2
FAILED		
Kentucky School of Med. of Louisville	(1884)	61.2
Kansas City Hahnemann Med. Coll.	(1905)	69.6

* Received certificate for four years' work. Degree will be granted on completion of internship.

Virginia December Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 10-13, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 14 passed and 3 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Southern College of Medicine and Surgery	(1914)	75
College of Physicians and Surgeons, Baltimore	(1889)	80
Toledo Medical College	(1905)	78
Jefferson Medical College	(1918) 89,	93
Medical College of Virginia (1918) 78, 82, 84, 84, 86, 86, 87, 90, 93.		
FAILED		
Homoepathic Hospital College, Cleveland	(1887)	69
Medical College of Virginia ....(1917) 72;	(1918)	63

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University	(1899)	Dist. Colum.
Atlanta College of Physicians and Surgeons	(1912)	Florida
Kentucky School of Medicine of Louisville	(1907)	W. Virginia
Medical School of Maine	(1907)	Maine
University of Maryland	(1906)	N. Carolina
Columbia University	(1908)	Tennessee
North Carolina Medical College	(1896)	N. Carolina
Jefferson Medical College	(1918)	U. S. Navy
University of Pennsylvania	(1917)	N. Carolina
Woman's Medical College of Pennsylvania	(1916)	Penna.
Vanderbilt University	(1913)	Tennessee
Medical College of Virginia	(1904)	S. Carolina
.... (1904)	(1915)	N. Carolina
University of Toronto	(1911)	Penna.

Ohio January Meeting

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports that 12 candidates were licensed through reciprocity at the meeting held Jan. 7, 1919. The following colleges were represented:

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1913)	Penna.
Kansas Medical College	(1894)	Louisiana
University of Louisville	(1887)	Kentucky
Baltimore University	(1900)	Delaware
College of Physicians and Surgeons, Baltimore	(1882)	Virginia
Johns Hopkins University	(1905)	Virginia
University of Michigan Medical School	(1891)	Iowa
	(1917, 2)	Michigan
St. Louis University	(1915)	Missouri
University of Buffalo	(1911)	New York
Medical College of Ohio	(1884)	Indiana

Book Notices

Physiology and Biochemistry in Modern Medicine. By J. J. R. Macleod, M.B., Professor of Physiology in the University of Toronto, Assisted by Roy G. Pearce, B.A., M.D., Director of the Cardiorespiratory Laboratory of Lakeside Hospital, Cleveland, and by Others. Cloth. Price, $7.50. Pp. 903, with 233 illustrations. St. Louis: C. V. Mosby Company, 1918.

This is not a textbook of physiology as usually understood, but a thorough review of those parts of physiology and biochemistry that bear most directly on general clinical medicine, with particular reference to the needs of the advanced students and of physicians. An enumeration of the different parts will give an idea of the scope of the book: the physicochemical basis of physiologic processes, the circulating fluids, circulation of the blood, respiration, digestion, excretion of urine, metabolism, endocrine organs or ductless glands, and the central nervous system. The first part discusses in lucid fashion the great physical and physicochemical principles of physiology; the exposition here given of osmosis, the laws of solution, gas laws, ionization, hydrogen-ion concentration, regulation of neutrality, and acidosis, colloids and ferments should prove of great interest and help to physicians and students in their efforts to advance their real understanding of disease. By far the larger part of the book is devoted to the divisions of physiology just indicated, which were selected for review because they have such wide application in the study of diseases. Physiology of the special senses, of muscle and nerve, and of reproduction is not considered, and there is no systematic discussion of immunology. It is a well written, well balanced, authoritative work, competent in every way to satisfy its purpose, namely, to facilitate the study, interpretation and treatment of disease in the light of physiology and biochemistry. The book has great potential value because it presents adequately the knowledge of these sciences that the physician can use to deepen his grasp of the nature and meaning of the phenomena of disease.

Pathologie de Guerre du Larynx et de la Trachée. Par E. J. Moure, Professeur à la Faculté de Médecine de Bordeaux, G. Liébault, Ancien Interne des hôpitaux de Paris, et G. Canuyt, Ancien Interne des hôpitaux de Bordeaux. Paper. Price, 26 fr. 50. Pp. 370, with 135 illustrations. Paris: Félix Alcan, 1918.

At the outset of this work, attention is called to the relative infrequency of injuries of the larynx, owing to the protection afforded it by the inferior maxilla and because of its free mobility. Contrary to organic lesions, the functional disturbances, as shown in changes of the voice, are exceedingly numerous. The topics discussed are taken up in this order: 1. The functional disturbances without any objective lesion: Here are noted mutism (dumbness), stammering and aphonia. The general treatment consists of rest, fresh air, hydrotherapy, faradization, and sometimes sedatives or suggestions. Massage of the larynx and education of the voice by means of exercises also were employed. 2. Extrinsic lesions of the larynx: In a summary of the anatomy of the nerve supply of the larynx, attention is called to the well known fact that the same nerve (recurrent) supplies both the constrictors and the dilators, that is, antagonistic muscles; the other nerve (superior laryngeal), although a sensory one, innervates the tensor of the cords. Lesions of these nerves from bullet and other wounds, producing the classical paralyses, and injuries to the esophagus, base of the tongue and hypopharynx are also described. 3. Wounds of the laryngotracheal tract, including fractures, lacerations, lodgment of foreign bodies, etc.: Considerable space is given to the study of cicatricial stenoses following injuries, especially those due to bullets and grenades. Attention is called to the fact that many of these lesions are more severe and more difficult of treatment and cure than similar ones encountered in times of peace. The action of toxic gases on the respiratory tract is also described, and the treatment outlined. 4. Surgery of the larynx and trachea: Tracheotomy, laryngotomy and thyrotomy are considered in detail as regards indications, contraindications, exact description of technic, and comparison of procedures in times of peace and those employed in emergencies of war. The remainder of the volume is taken up with the treatment of cicatricial laryngeal stenoses. The authors most emphatically endorse local anesthesia in the operative work for the correction of the stenoses. For the closure of tracheal fistulas the autoplastic method of Moure is used. The work closes with a list of case histories, together with illustrations showing the methods and results of the tracheal operative procedures. Written with usual French clarity and precision, this book gives a fund of valuable information, yet is not so bulky as to be wearisome.

La Cura Delle Ferite Toraco-Polmonari. Pneumotorace Artificiale Toracentesi Cura Dell'empiema. By Prof. Eugenio Morelli, Aiuto Alla Clinica Medica della R. Universita di Pavia. Paper. Pp. 181, with illustrations. Bologna: Licinio Cappelli, 1918.

This is a discussion of the subject of wounds of the chest, especially those in which hemothorax develops, with perhaps a later empyema. The causation—usually a bullet, shrapnel or shell splinter—is considered, together with the symptomatology and the results by various methods of treatment. The author had his schooling with Forlanini, whose work on the treatment of pulmonary tuberculosis, pulmonary hemorrhage, pleural effusions, etc., by means of artificial pneumothorax, is well known. It is not to be wondered at, therefore, that Morelli has applied the same principle to the treatment of this not infrequent accident of war. He has developed a technic that is accurately described in these pages and which, carefully carried out, has given surprisingly fine results, as shown by the case histories and the roentgenograms. The dangers of open pneumothorax as compared to closed are emphasized, a point that has been brought out by Duval and others of the French surgeons as well as by the Americans Graham and Mitchell, among others. The book seems to be a real contribution to clinical medicine and surgery, and its results, if confirmed by further trial, should be widely applied in civil as well as in military practice.

Infection and Resistence. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By Hans Zinsser, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University. With a Chapter on Colloids and Colloidal Reactions, by Professor Stewart W. Young, Department of Chemistry, Stanford University. Second edition. Cloth. Price $4.25. Pp. 585, with 30 illustrations. New York: The Macmillan Company, 1918.

The revision of this excellent work appears to have been a thorough one, especially of the chapters dealing with anaphylaxis, nonspecific serum and cell reactions, and specific therapy. The aim of the work is to present in detail the principles of the biology of infectious diseases, which must be mastered before these diseases can be studied and treated intelligently according to present practice, and this aim is accomplished in an altogether satisfactory way. The discussion of the origin of antibodies should be extended to include the results of the more recent work on this and related problems. That Sternberg was a pioneer in the study of phagocytosis should not be allowed to pass into oblivion. These and other shortcomings, none of which are in any sense of a serious nature, will be remedied easily when quieter days permit a more thorough and leisurely scrutiny of the literature.

War-Time Nerves. By Herbert J. Hall, M.D. Boards. Price, $1 net. Pp. 119. Boston: Houghton, Mifflin Company, 1918.

This little book consists of fifteen more or less disconnected essays by the author of "The Untroubled Mind." The first is an effort to answer some interesting questions regarding the relation of the war to the individual. "How do men get into it and why, and what is the reaction on those who stay at home?" he asks. What is the effect on the minds of the participants of the tremendous world war through which we have just passed? The writer, a neurologist of many years' experience, has "seen into the lives of a number of men who have enlisted or who have been drafted, who have come back from the service or who are waiting to go." He has also studied the lives of those who stayed at home. The net result, he concludes, "is all, or mostly all, good; and the greatest change is in simplification and a new idealism. We no longer need so many things to make us happy. There is in the air a sense of relief even in the face of dread and danger. . . .

War, even to those at home, is such an all-pervading, penetrating matter. It gets into the most sluggish blood, it activates the most torpid brain, it makes men alive, it makes them think." Other chapters on moods and obsessions, practical patience, justification, the middle course, truth-telling in medicine, the medicine of the spirit, symbols, and sleep are equally interesting and reassuring. Some of Dr. Hall's observations are worth remembering: "A sanatorium is a place where people, who, for any reason, are not able to live successfully at home, may find special conditions which make health and happiness possible." "People who work for a living rarely understand the debt they owe to monotony." "He is a wise physician who can tell the truth without spoiling it and his patient."

Précis de Dermatologie. Par J. Darier, Médecin de l'Hôpital Saint-Louis. Second edition. Cloth. Price, 18 francs. Pp. 864, with 195 illustrations. Paris: Masson et Cie, 1918.

Despite the war and its attendant demands on his time, Darier has been able to revise, and in many sections rewrite, his textbook on dermatology. To shorten the work as much as possible, he has dispensed with the bibliography, case histories, citations and academic discussions, and has limited himself to the essentials in descriptions, diagnosis and treatment of dermatoses. Much space is saved by the elimination of the customary chapters on the histologic and pathologic anatomy of the skin. The first part of the book classifies and discusses the dermatoses from the point of view of the fundamental pathologic process involved. In other words, the classification is made according to the essential lesions. The author admits that such a classification is open to many criticisms, but is of the opinion that it has advantages in the presentation of the subject to the beginner which far outweigh the disadvantages. In this opinion one may heartily concur. The second part discusses those diseases of the skin which may be considered morbid entities of definite etiology, and classifies them according to their nature and cause. No author has thus far evolved a classification of the dermatoses which is satisfactory to himself, much less to his colleagues, and every attempt at a classification is invariably criticized. Perhaps the one adopted by Darier is as clear and as workable as any other offered. Those diseases which have unknown etiologies, such as eczema, lichen planus and psoriasis, are not included in the second part, but are discussed in extenso in the first part, since the author considers them not as definite entities, but as pure syndromes. In this edition much new material has been added. Notwithstanding the high cost and the scarcity of paper, the publishers have maintained their standard of quality. A translation of this work into English should be welcomed by a large number of teachers and students of dermatology.

On the Nature of Things. By Hugh Woods, M.D., B.A., F.C.S. Cloth. Price, $2.50. Pp. 248. New York: William Wood & Co., 1918.

The author has taken as the title that of the poem by Lucretius written over 2,000 years ago in which the Roman poet and philosopher endeavored to set forth the ideas that prevailed in his day regarding matter, motion, space, light and time. Dr. Woods discusses such modern questions as heat, electricity, magnetism and chemical action. As he remarks in his preface, "Science has reared its structures, as builders erect towers, on foundations more or less solid, but without closely considering the exact nature of the foundations—how they were formed and from what." The rapid development of practically all branches of scientific knowledge has so enormously increased the amount that has to be learned in any one branch of science as to require a lifetime for the mastery even of a limited field, with the result that few men, however well advanced in the details of practical scientific work, have taken any time to familiarize themselves with the principles underlying all scientific knowledge. This is particularly true of physicians, in whose training instruction in both pure and applied science in physics, chemistry and biology is necessary. Very few physicians have ever given any attention to the fundamental principles underlying all scientific knowledge. Such a book as this, therefore, can be read with benefit by physicians, whether the author's views are accepted or not. Especially interesting is the chapter on chemical atoms and molecules in which is discussed the probable shapes of the atoms of the different elements and the influence of atomic form on chemical combinations. The chapter on light, which he regards as transverse ether waves, and electricity, which he considers to be longitudinal ether waves, is also illuminating and suggestive. The physician in the pursuit of technical professional knowledge has become far too narrow in his reading and thinking. Such books as the "Nature of Things" should be read by those physicians who desire to keep abreast of advancing scientific knowledge, and should result in a widening or our professional horizon.

Medicolegal

Power of Board of Health to Require Vaccination

(State v. Martin et al; Brazil v. State (Ark.), 201 S. W. R. 622)

The Supreme Court of Arkansas says that each of the two entitled causes involved the validity of a rule adopted by the state board of health, Dec. 3, 1917, and for that reason they were incorporated in one opinion. The first case it reverses and remands with directions to overrule a demurrer to the indictment of the defendants for permitting certain pupils in a school district to attend school without presenting a certificate from a licensed physician showing successful or recent vaccination, immunity from having had smallpox, or physical disability which might contraindicate vaccination, the demurrer being on the ground that the indictment did not charge a public offense against the defendants jointly or severally. In the second case the court affirms a conviction of defendant Brazil for sending his children to a school without presenting a certificate of vaccination or immunity from smallpox.

The court holds that there was no error in the fact that no proof was made in the Brazil case of the rule of the state board of health requiring a certificate of vaccination or immunity *therefrom by* pupils as a prerequiste to attendance on the school, as rules, orders and regulations made and promulgated by the state board of health will be judicially noticed by the court of the state. The court also holds against the contention in both cases that the board was not authorized by Act 96, Acts of 1913, to adopt and promulgate such a rule, because, while the board is not specifically authorized to supervise, control, suppress or prevent smallpox by isolation, quarantine or vaccination, or to adopt and promulgate any rule with reference to this particular disease, its isolation, control, suppression or prevention, the language of the statute is broad enough to include all diseases and all remedies, and specifically includes diseases that are infectious, contagious and communicable, and the power to prevent the entry into and spread of such diseases in this state. Moreover, while it is true that the board of health is not authorized to manage or control the schools of the state, either public or private, that power being conferred on other agencies, the prevention or spread of contagious or infectious diseases by preventing unvaccinated persons from associating with the schoolchildren and schoolteachers of the state in no way infringes on the constitutional right to attend the schools or the management and control thereof by schoolboards or directors. It would not be contended that parents and guardians could send their children to school unclad and unfed. Other reasonable health regulations are just as important as food and clothing. The mere fact that the will of the legislature is to be worked out through methods and details provided in rules and regulations to be adopted and promulgated by the board of health does not render the statute itself incomplete. The creation of boards of health for the purpose of preventing and controlling contagious diseases, and the right of the boards to adopt reasonable rules and regulations for that purpose, is not regarded generally as a delegation of legislative authority.

The necessity for, and reasonableness of, the regulations are largely within the judgment of the board. Every presumption is indulged in favor of the necessity of the rule, and courts will not interfere with acts of health authorities unless it is apparent that the rule is arbitrary. The existing conditions in the state at the time the rule was adopted warranted the adoption of such a rule, as it is commonly known that at that time smallpox was prevalent in the state, and that, unless preventive measures were adopted, a smallpox epidemic might result; besides, it was adopted during the period of the mobilization of the army quota of Arkansas, when soldiers were being transported in and out of the state in great numbers.

It is true that there is no American authority for compulsory vaccination in the sense of forcing one to submit his person thereto; but there is authority for penalizing one who refuses to comply with an order of law requiring vaccination. By reading the compulsory education act and the rule together, the net result is to enforce vaccination by penalty only. The act and rule can be read together so that both may stand, and should be read together, because it is quite clear that the legislature did not intend, in the passage of the compulsory education act, to repeal the health rule for preventing the spread of smallpox and other diseases.

Roentgenographic Injury Due to Hypersensitive Skin

(Hamilton v. Harris (Texas), 204 S. W. R. 450)

The Court of Civil Appeals of Texas reverses a judgment for $2,500 damages that was rendered in favor of plaintiff Harris for personal injuries alleged to have been inflicted on him by the negligent application of roentgen rays to his body by defendant Hamilton for the purpose of treating eczema. The court says it was alleged that the defendant was negligent because he failed to protect, with a blanket of lead, or a composition of rubber and lead, the plaintiff's body from being burned, such protection being usual and customary; that the opening in the protecting blanket was too large; that the current applied by the defendant was too intense; that he exposed the plaintiff to the current for too long a time; and that he left the room in which the treatment was administered during the application of the roentgen rays, whereas he should have remained and watched the effect of the treatment. The defendant answerd by general demurrer, general denial, and specially alleged in defense that the injury to the plaintiff was caused by the peculiar condition of his skin, which was alleged to be hypersensitive to roentgen-ray current, and that this idiosyncrasy of the plaintiff's could not have been discovered by the defendant prior to the treatment. The fact was that the plaintiff was severely burned by a roentgen-ray current while being treated professionally by the defendant, who was a practicing physician and an expert in treating skin diseases with the roentgen ray. The controlling issue of fact made by the evidence was whether the injury was caused by one or more of the acts of negligence alleged by the plaintiff, or whether the injuries were suffered because the plaintiff's skin was hypersensitive to the roentgen-ray current. Naturally whether or not the plaintiff did in fact have a hypersensitive skin was an issue.

The defendant's first and second assignments of error assailed the trial judge's general charge because it did not affirmatively submit to the jury the defense that the proximate cause of the injury was the hypersensitive skin of the plaintiff. The charge defined "negligence" to be the failure to exercise "ordinary care," and further instructed to find for the plaintiff if the jury believed from the evidence that the defendant was negligent as alleged and believed evidence that the defendant was negligent as alleged and that such negligence was the proximate cause of the injuries; otherwise to find for the defendant. The defense of abnormal skin made by the defendant's pleading and evidence was not affirmatively submitted. It was contended by plaintiff's counsel that the affirmative submission of the defense would have been a charge on the weight of evidence, inasmuch as the question of the plaintiff's hypersensitive skin was involved in the question of whether the defendant was guilty of negligence, and that there was no evidence that the plaintiff actually had the idiosyncrasy asserted. But, if credited by the jury, the testimony of the defendant himself and of five other physicians, as well as that of a physician who was the plaintiff's witness, was sufficient to authorize the jury to find that the plaintiff did have a hypersensitive skin, and that this peculiarity was the proximate cause of the injury. The court does not think the affirmative submission desired by the defendant would have been a charge on the weight of the evidence. A physician is not required to take precaution against a peculiar temperament or abnormal idiosycrasy of which he has no knowledge and for detecting which there is no means. The evidence showed that the defendant did not know of the plaintiff's hypersensitiveness, and that there is no way to ascertain such a peculiarity prior to the treatment. The court thinks the jury should have been told in appropriate language that, if it believed the proximate cause of the injuries to the plaintiff was his abnormal hypersensitiveness, but for which the injury would not have occurred, a verdict should be returned for the defendant. Wherefore the assignments of error are sustained.

But another assignment of error, which complained because the judge refused to submit an issue of assumed risk, is overruled, as there was no evidence that would authorize such a charge. There was no evidence that the plaintiff knew or ought to have known that the roentgen-ray treatment was dangerous, because powerful and insidious.

Use of Nonabsorbable Silk Sutures

(Linn et al. v. Peirsol (Calif.), 173 Pac. R. 763)

The District Court of Appeal of California, First District, reverses a judgment that was rendered in favor of Mrs. Linn in this action brought by her and her husband to recover damages for alleged malpractice. The court says that the defendant's main point on this appeal was that there was no showing of negligence on his part sufficient to warrant sending the case to the jury, and that therefore either his motion for nonsuit or his motion for a directed verdict should have been granted. The alleged negligence of the defendant, a physician, for which the plaintiff sought to recover, lay in the use by him in an operation of nonabsorbable silk sutures instead of catgut. The only testimony in the record to show that this was improper was contained in an answer to a single question propounded to a physician who was one of the plaintiff's witnesses, who testified that a careful surgeon would not use silk in the place where it had been used. On cross-examination he admitted, however, that, where a physician requires a ligature that will hold fast to prevent bleeding, he may with propriety use the silk, and he made it clear that his previous answer was based entirely on the conditions as he found them at an operation performed by himself six months after the operation by the defendant. The only other medical witness for the plaintiffs testified that the choice between silk and catgut is a matter of judgment in each particular case, and there was no testimony in the record to show that, under the conditions as they appeared to the defendant when he performed the operation, the use of silk was negligence. It appeared from the defendant's testimony that he had performed two operations on Mrs. Linn, that on the first occasion he had had trouble from hemorrhage as a result of the use of catgut, and that therefore he had used silk on the second occasion. It was true that the use of the nonabsorbable silk in the case at bar proved unfortunate, as the silk caused certain perforations of the intestine, which produced serious trouble; but it was clear that on the second operation the defendant was in a dilemma. The use of catgut had resulted in hemorrhage before, which he wished to guard against, and the use of silk might produce irritation. Under the circumstances, he should not be held liable for what was at most a mistake of judgment in weighing the probable consequences of the different methods that might be pursued. A physician is required to possess only ordinary skill in his profession and to use his best judgment in the exercise of that skill, and, if he complies with these requirements, he is not liable for the nonsuccess of his treatment. The defendant's motion for a new trial should have been granted, as the trial court's orders denying the motions for nonsuit and for directed verdict were erroneous.

Society Proceedings

JOINT MEETING OF THE CHICAGO MEDICAL AND CHICAGO PATHOLOGICAL SOCIETIES

Held Feb. 12, 1919

The President of the Chicago Pathological Society,
Dr. J. P. Simonds, in the Chair

Dr. J. P. Simonds: Yellow fever is of international importance and has an international bearing, and because of that fact the International Health Board of the Rockefeller Foundation, largely at the suggestion of General Gorgas, appointed a yellow fever commission to go to South America to study sanitary conditions on the west coast of Ecuador, particularly about Guayaquil. The Chicago members of this commission were Drs. Arthur I. Kendall and Charles A. Elliott. Dr. Kendall was for two and a half years chief of the government laboratory in the Canal Zone and had much to do along with General Gorgas in eradicating yellow fever from the Canal Zone.

National and International Relations of Sanitation in Ecuador

Dr. Arthur I. Kendall: Up to 1820, the vast majority of South American countries were under the subjugation of Spain. The United States has had in the past and will have in the future ever increasing interest in these countries. The greatest menace that these countries offer to the world at large is that which has to do with certain endemic diseases, and of these yellow fever and the plague are the most formidable. Yellow fever at present is endemic on the west coast of Africa and Guatemala, certain parts of Mexico, and the west coast of South America, south of Panama to the northern border of Chile, throughout the coast of the plain region, a distance of anywhere from 20 to 40 miles of the Andean plateau region. It is endemic on the east coast of South America, in Colombia, Venezuela, and possibly in the great land lying in the more western parts of Brazil. Yellow fever, therefore, is largely an American disease, and there are well authenticated histories of cases of yellow fever appearing as far north as New York and Philadelphia. In 1796 or thereabouts a rather extensive epidemic of yellow fever occurred in Philadelphia. Within the last few years New Orleans has suffered from yellow fever, and other southern cities at one time or another have been visited. In 1898 Havana, Cuba, enjoyed the somewhat doubtful honor of being called the pest hole of the American continent, and it was chiefly so regarded because of the prevalence of yellow fever there. In 1901 the last case of yellow fever occurred following the brilliant work of the American army. The mode of transmission of the disease was discovered by a commission headed by Major Walter Reed, and the practical measures suggested by General Gorgas (then Captain Gorgas) were put into effect. In October, 1906, the last case of yellow fever occurred on the Isthmus of Panama. As far as is known, there has never been a case since.

The great problem is to restrict the distribution of this disease until the time shall come when it will vanish from the face of the earth. Yellow fever is probably the easiest disease to conquer. The disease itself, so far as sanitation is concerned, spreads only in warm weather. It is transmitted exclusively through the agency of a particular mosquito, which enjoyed a large number of names prior to its discovery as the extrinsic host of yellow fever. The mosquito was known as the *Culex fasciatus* When it was found that this organism was responsible for the transmission of yellow fever from man to man, a little more careful scrutiny revealed the fact that the mosquito did not belong to the genus *Culex*, and a new genus, *Stegomyia*, was coined. Since that time the name has successively changed from *Stegomyia fasciata* to *Stegomyia calopus* and others.

The method of transmission of the organism of yellow fever appears to be very similar to that of *Plasmodium malariae.* The mode of transmission of malaria may serve as an illustration of the part the mosquito plays in the transmission of yellow fever, with which practitioners are familiar.

There is a latent period between the time the mosquito bites an individual and the time when that mosquito becomes infective for another individual. This period is roughly from ten days to two weeks. So far as is known, a similar cycle in point of time takes place in the transmission of yellow fever. The female mosquito bites patients with yellow fever, and then a period elapses during which that mosquito is quite unable to transmit the disease to another nonimmune host. This period coincides in point of time quite accurately with the period corresponding to the larvæ. There must be an extrinsic cycle in the mosquito which harbors the yellow fever organism quite as truly as there is an extrinsic period in the mosquito which harbors the malarial parasite. There is this difference between malaria and yellow fever: One attack of malaria by no means confers immunity or prevents infection. It predisposes to subsequent infection, or there is almost inevitably a series of relapses. It means that the individual infected with malaria may in successive intervals be a source of danger to other noninfected individuals. Yellow fever is a disease which allows the host to recover from the infection and to remain immune for all time. At least, this is so in the great majority of cases. Furthermore, the disease may be transmitted only during a particular interval, this interval elapsing between the time of the initial chill, which is quite common in yellow fever, and the period which is approximately seventy-two hours afterward. If this theory is correct, and experimental evidence suggests that it is, if every individual suffering from yellow fever should be screened and protected from mosquitoes at the time of the period just before the chill until the period of three or four days after the chill, yellow fever would cease to exist.

The methods of eradicating yellow fever are, first, to destroy the mosquitoes, which means the control of their breeding places, and also mosquitoes which are in the adult stage; to protect all febrile cases from the bites of mosquitoes during the three days or thereabouts in which persons may become infected, and finally to be certain that nonimmune individuals are kept out of unsafe areas. The method of exterminating mosquitoes is somewhat complicated in detail but simple in principle. It means careful drainage, inspection of all breeding places where the insects may grow, and the destruction of adult mosquitoes by fumigation.

The problem in Havana and in Panama for the extinction of yellow fever was somewhat different from that in South American countries, and particularly in Ecuador, where the work is now going on. In Panama and in Cuba the houses are, for the most part, of such construction that they can be fumigated quite readily, and one of the essential details of the elimination of yellow fever, as practiced in these places, was the careful fumigation of all of the houses at regular intervals in infected areas.

In Guayaquil, which is the principal point of infection at present, the structure of the houses is of such a nature as to render fumigation difficult. Earthquakes are common in Guayaquil; therefore the construction of buildings must be such as to safeguard the inhabitants from the danger of death by the collapse of buildings. The majority of the houses are made of frames which are joined in such a way that there is a certain amount of flexibility at the junction of the timbers, and these are covered with bamboo, which grows luxuriantly in the swamps, in the lowlands of Ecuador, and is of fairly large size.

Success in exterminating yellow fever and mosquitoes depends particularly on conducting operations quietly to prevent the mosquitoes from flying around. If unusual commotion is stirred up in placing these tents and putting them together, it will cause the mosquitoes to fly around. There is great probability that these mosquitoes fly from place to place; hence the question of fumigation is correspondingly complicated.

The mountaineers of Guayaquil are brought up in a country whose climate is much like our own. Yellow fever does not exist at the altitudes in which these mountaineers live; consequently they are quite as susceptible to the disease as are persons from temperate zones. In the endemic areas the probability is that the children get yellow fever before they are many years old, and therefore the disease in the adults of the coastal plain region is practically unknown. People, however, from the mountains, who come to the coast seeking employment or to embark for other countries and pass through Guayaquil or the coastal provinces, may become infected, and the influx of people from the higher levels keeps yellow fever alive, in spite of the fact that the number of foreigners who visit Ecuador are few indeed.

Ecuador is handicapped, as are other countries in which yellow fever is endemic, in their commerce with the world. Ecuador is a wonderful country. It raises everything from the finest fruits of the tropics, to those that are characteristic of temperate zones. It is near Panama; and since the Panama Canal is now open, many ships are required to carry provisions; consequently the elimination of yellow fever from Ecuador will give to that country a new life. If the country fails to rid itself of yellow fever, it will probably become bankrupt, and revolutions are almost certain to follow.

The International Health Board has charged itself with the duty of helping in international sanitation, and one of the groups in the International Health Board is the Yellow Fever Board, of which General Gorgas is chairman.

Some years ago General Gorgas and other yellow fever experts made a trip through the infected areas of yellow fever in South America and made known the prevalence of the disease there, and as a result of their trip and their deliberations, it was decided that it is feasible and possible to eliminate yellow fever from the face of the globe. If this can be accomplished, and Ecuador can be freed from yellow fever, the United States will be regarded in an entirely different light from what it is today.

Clinical and Pathologic Manifestations of Yellow Fever

Dr. Charles A. Elliott: Our clinical study was made in fifty consecutive cases of yellow fever. The histories elicited were fairly uniform. The first symptoms noted were a feeling of uneasiness, especially epigastric unrest, headache, backache, and aching of the extremities. Fever developed rapidly, often heralded by a chill or chilly sensations, which are frequently repeated. Nausea, and often vomiting, occurs repeatedly from the start, the latter usually bilious, although black vomit is noted by some of the patients as early as the second day. Fever, headache, backache, general muscular tenderness, and epigastric tenderness or pain, nausea and vomiting persist in various combinations until the admission of the patient to the hospital. A precipitous onset in uncomplicated cases, in which the patient gives a definite history of being well the day before the onset, is the rule.

In some patients who had been suffering from malaria for varying periods, a history of unusual symptoms, namely, sudden onset of nausea, vomiting, epigastric tenderness, headache, backache and persistent fever, was noted. This type of history of yellow fever developing during the course of malaria was present in four of thirty-nine cases in which reliable histories were obtained. In cases of this type the diagnosis was always uncertain until typical manifestations of yellow fever developed later, and most of these cases proved not to be yellow fever.

On admission the patient appeared restless and anxious, the face was flushed, the conjunctivae were injected, the gums were swollen, and they bled easily on pressure. Hemorrhages into the skin varying from 0.1 to several centimeters in diameter, usually irregular in outline, may occasionally be found on searching. Infected mosquito bites on the skin of the forearms or legs were frequently found. The mucous membrane of the mouth was congested. Herpes labialis was present in two cases. The lymphatic glands were not enlarged. The lungs were remarkable for being entirely free from findings expect during terminal hypostasis and pulmonary edema. The cardiac findings were usually negative. Occasionally a precordial systolic murmur was heard during the height of the disease, and rarely extrasystoles were noted. The abdomen was usually tender throughout, the epigastrium and liver edge being exquisitely tender. The liver was not definitely enlarged except in a few cases. The spleen was definitely enlarged only in those suspected of being malaria; it was not palpable in most of the pure yellow fever cases. Tenderness on pressure over the flanks was usually marked. The skeletal muscles were usually tender on pressure throughout the course of the disease.

During the second period of the disease the patients were relaxed, usually quiet, and appeared dried out, jaundiced, weak, and apparently very ill, but otherwise the physical findings remained about constant. The fever was relatively low, continuous, and of short duration. It reached its height on the first day, continued remarkably constant for three or four days, and then gradually dropped to normal by the fifth to the eighth day. The pulse was apt to be relatively slow during the fever course, showing a marked dissociation between the pulse and temperature curves at that time, although early and late, after the temperature has reached normal, the pulse follows the temperature curve. While a relative bradycardia of moderate degree is the rule, absolute bradycardia is unusual. A pulse of 50 or less was observed in only three of the series.

During the first few days of the disease the patient often complained of a sense of dyspnea, the only objective evidence of which was an occasional deep sighing respiration accompanied by a peculiar whistling expiratory note. Other than this, patients with light and moderately severe cases went through the entire course of the disease with apparently normal respirations. Jaundice was a constant, although variable manifestation in all cases. In general, it varied with the severity of the disease; in most light cases it was inconspicuous, although in some of these it appeared marked and out of proportion to the other manifestations of the disease.

The blood shows little that is characteristic. The white blood count averaged about normal, with a definite leukopenia of less than 4,000 in only nine cases. The high counts, from 49,600 to 13,000, were obtained in moribund, usually uremic, patients; but it is noteworthy that some comatose patients gave normal white counts. The hemoglobin was universally low, but three estimations exceeded 90 per cent.; ten were between 80 and 90 per cent., and estimations between 40 and 60 per cent. were common. Nothing distinctive could be detected in the blood pressure determinations, except that it was uniformly low, systolic pressures of 110 or less, and diastolic pressures of 65 or less being the rule.

Hemorrhage contitutes one of the distinctive manifestations of yellow fever as seen in these cases. The principal structures which bleed are the nasal and gingival mucous membranes, and the gastro-intestinal and genito-urinary tracts. A history of early epistaxis was present on inquiry in seven cases. Extensive epistaxis occurred later, namely, on the fifth to the twelfth day in twelve cases. Melena was present in thirteen of thirty cases in which this point could be determined; and in three, large quantities of fresh blood were passed. In general, in all severe cases there was bleeding during the second and third week of the disease, and in the light cases no bleeding at all. The administration of horse serum in six cases had no perceptible effect on hemorrhage. The urine of all yellow fever patients was extremely highly colored, varying from a dark yellow to olive green, the foam being always yellow. The amount passed varied from an average of 700 c.c. to complete anuria, which usually foretold death. Albumin began to appear as a trace on the second or third day, rapidly increased to enormous amounts, 3 or 4 gm. per liter during the second week, and then gradually decreased and finally entirely disappeared during the third or fourth week. In light cases, albumin and casts were present out of proportion to the other manifestations of the disease. Uremia occurred as a terminal condition in all fatal cases. The majority of the patients harbored intestinal parasites in the stools. Complications and sequelae were unusual. Parotitis occurred in two cases, phlebitis in one, and acute joint phenomena, such as pain and swelling of sudden onset, in three cases. Restitution progressed rapidly in all patients that recovered, although some were weak and many showed varying grades of jaundice at the time of discharge.

The greatest stress was placed on the following diagnostic points in the order named: 1. The fact that the patient was a foreigner and not a native of Guayaquil, or had recently arrived from the interior. The local physicians considered it practically impossible that a child born in Guayaquil should grow to maturity without having had yellow fever, and therefore was immune, and conversely, that a nonimmune adult could not live long in Guayaquil without having it. 2. A low, continuous fever course with relative bradycardia. A fever of 40 C. or over speaks against yellow fever. 3. Nausea and vomiting, black vomit being practically diagnostic. 4. Epigastric pain and tenderness, often intense from the first. 5. Rapid and progressive development of nephritis, albumin present as a trace on the second day, with from 1 to 3 gm. per liter on the fourth day. 6. Flushed and suffused face, injection of conjunctivae, and swollen and often bleeding gums. 7. The gradual and progressive development of jaundice, a trace seen on the conjunctivae as early as the third day.

The greatest difficulty occurred when yellow fever developed in those already infected with malaria. In children with yellow fever, as seen in this series of cases, the manifestations were the same as those in the adults.

In relation to the prognosis, it was difficult to foretell the gravity of a case. Those admitted early with much facial congestion, injection of the conjunctivae and swollen gums, who were restless and apprehensive, and showed some dyspnea, were considered as having the disease in very grave form, and usually died. Tachycardia is always considered grave. All uremic phenomena, such as air hunger, restlessness, delirium and coma, accompanied by a lessening of the output of the urine to anuria, were grave signs, although not always fatal.

Of the fifty patients in this series, nineteen died, a mortality rate of 38 per cent., which was considered about the usual rate in Guayaquil. The mortality rate of yellow fever of all patients admitted to the lazaretto from Jan. 1 to Aug. 1, 1918, was 44 per cent.

Little *treatment* was attempted beyond the employment of general principles applicable in all fevers. Little or no medication was given, and no conclusions can be based on our experience in this regard.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

Annual Session, held at Mankato, Jan. 20 and 21, 1919

The President, Dr. M. S. Henderson, Rochester, in the Chair

Some Old Hospitals of London: Treatment of Fistula in Ano and Hemorrhoids

Dr. William J. Mayo, Rochester: Among the most unique and interesting of the pioneer special hospitals of Great Britain is St. Mark's Hospital, founded in 1835, and built for the treatment of fistulas and other diseases of the rectum exclusively. It was here that the great Allinghams, father and son, worked and practiced the ligature operation for hemorrhoids. Fistula in ano has been well treated at St. Mark's Hospital for more than forty years.

Many years ago I was so fortunate as to become acquainted, by personal observation, with the methods introduced in St. Mark's Hospital for the repair of fistula in ano, and as a result, I can look back on a most satisfactory experience with this particularly annoying variety of infirmity. Goodsall pointed out that if a line was drawn transversely through the middle of the anus, all the fistulas lying anterior to that line would pass directly from the external skin opening to the internal opening inside the anal canal, and that all the fistulas posterior to that line would have their internal opening in the midline of the anal canal, posteriorly, no matter where or how many lateral openings, the so-called horseshoe fistulas, are present. In the anterior fistulas, therefore, the external opening will be found opposite the internal opening. An anterior horseshoe fistula, as Edwards remarks, is practically unknown. The cause of the curved or angular shape of the posterior fistulas, the external openings of which lie laterally and lead by a crooked passage to the internal opening posteriorly, is the arrangement of the coccygeal ligaments and muscles which protect the external tissues lying in the midline posteriorly and direct the pus laterally; the so-called horseshoe tracts and openings are thus formed. The treatment of the posterior fistula, which is the troublesome one, consists of carefully following the one or more external openings to the midline posteriorly where the fistulous tract leading to the internal opening just above the external sphincter will be readily exposed. At King's College Hospital, in 1862, Henry Smith originated the clamp and cautery treatment for hemorrhoids, a method we have used in hundreds of suitable cases with the utmost satisfaction. The hemorrhoid should not be trimmed away with the scissors, because, if the eschar pulls apart, the cut artery, which is most resistant, will bleed; the hemorrhoid should slowly be converted into an aseptic eschar protected by the desiccated tissues.

Acute Mastoiditis

Dr. Joseph D. Lewis, Minneapolis: Mastoiditis develops when a preexisting suppuration of the middle ear extends to the mastoid cells. When confronted with an impending or actual acute aural suppuration, efforts are at once directed to measures which are intended to terminate the purulent condition of the middle ear and prevent a further extension of the process to the mastoid cells by a free incision (myringotomy). Mastoidectomy, performed before complications supervene, is attended with little risk, even when the sigmoid sinus and dura are uncovered for inspection, as the danger of infection is slight, provided the dura is not wounded at operation. When operation is delayed until thrombosis of the sigmoid sinus, meningitis or brain abscess develops, the mortality is high, despite prompt surgical intervention. If acute purulent otitis media is allowed to continue until the condition becomes chronic, making it necessary to perform a radical mastoidectomy, there may follow loss of hearing.

Fractures Considered as Potential Deformities

Dr. M. S. Henderson, Rochester: Following a fracture in the region of the shoulder joint, the common disability is lack of abduction and external rotation; in the region of the elbow, lack of flexion, and in the region of the wrist there is the well known dinner fork deformity, with inability firmly to close the fingers. A fracture in the hip is prone not to unite unless adequate fixation is provided after the reduction. A supracondylar fracture of the lower end of the femur or an epiphyseal separation interferes with the proper transmission of weight through the joint surfaces, and limits flexion and extension. Pott's fracture not infrequently causes disability by the valgus produced by poor alinement for weight bearing. If the type of deformity that is apt to follow the particular fracture being dealt with is kept in mind, and if it is recognized that the deformity is potential, better results will undoubtedly be obtained by so directing the treatment as to guard against poor alinement of the fracture.

Open and Closed Treatment of Fractures

Dr. Archa E. Wilcox, Minneapolis: Whichever method is used, it is obvious that the best results follow, first, a complete reduction of deformity of the fragments; second, holding the fragments in place; third, obtaining osseous union, and fourth, the restoration of function of the affected part. No simple fracture should be treated by any other than the closed method until repeated and untiring efforts are made to reduce the fracture, checked and rechecked by the roentgen ray or fluoroscope, have failed. The Lane plate has rapidly lost favor with most surgeons who do much bone work. I have removed many more than I have put in, and even many of those surgeons who still believe in the use of these plates, and apply them, advocate their routine removal. In only rare instances, for temporary fixation, would I recommend them. The bone graft and the Parham band have been extremely useful. The main advantage of the Parham band is that it does not injure the bone and rarely, if ever, has to be removed, and with the carrier which I have devised it is easily applied.

In certain oblique fractures of the tibia which are very troublesome, I apply an intramedullary graft, which we have designated the "submarine" graft. The graft is cut with the twin saw. It is shaped to fit the medullary cavity at the site of fracture, and then replaced in the upper fragment and submerged into the medullary cavity and driven through the line of fracture into the distal fragment, the two fragments being held in a Lohman clamp. In three cases the clinical results apparently have been 100 per cent.

Placenta Praevia and Abruptio Placentae

Dr. M. J. Jensen, Minneapolis: Placenta praevia can be considered in two groups: cases in which labor has not begun and those in which labor has already started. The cases in which bleeding begins before labor may be treated expectantly by absolute rest and sedatives. The indications for this treatment are largely in the interest of the child. If sedative treatment has been tried and hemorrhage recurs while labor is not yet started, and in a case of a single profuse hemorrhage, active measures are indicated at once. In every case of placenta praevia and accidental hemorrhage, the strictest precautions for asepsis and thorough preparation, as for any surgical operation, must be carried out. In a certain number of these cases, cesarean section should always be performed: first, in primigravidae and other cases with sufficient pelvic obstruction to prolong labor seriously; second, in cases with a rigid and undilatable cervix, in which the indications suggest a prolonged labor, and third, in most cases of placenta praevia centralis and placenta praevia complicated by eclampsia. In accidental hemorrhage the method which empties the uterus in the quickest time possible without producing shock or injuring the soft parts, dilatation, version and extraction, is the method. Cesarean section should never be done as a routine measure until the child is viable and the mother is a good surgical risk.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Neurology and Psychiatry, Chicago

February, 1919, **1**, No. 2

*Case of Occlusion of Posterior Inferior Cerebellar Artery with Cardiac Manifestations and Involvement of Left Vagus Nucleus. L. Hausman.—p. 145.
Eye and Aviation. W. H. Wilmer.—p. 162.
Id. E. R. Lewis.—p. 167.
*Focality of Microscopic Brain Lesions in Dementia Praecox. E. E. Southard.—p. 172.
*Histogenesis of Multiple Sclerosis. T. Klingman.—p. 193.
*Subacute Form of Multiple Sclerosis. W. G. Spiller.—p. 219.
*Unsuspected Involvement of Central Nervous System in Syphilis. P. Fildes, R. J. G. Parnell and H. B. Maitland.—p. 231.

Cerebellar Artery Occlusion.—The case reported by Hausman was one of occlusion of the left posterior inferior cerebellar artery with cardiac manifestations in a man of 48. The onset was gradual without loss of consciousness, but with a sense of giddiness, faintness and nausea, and a tendency to stagger occasionally to either side. This was followed a few days later by persistent hiccough and hoarseness. In view of the presence of glycosuria and a family history pointing in the same direction, diabetes, together with arteriosclerosis, was considered the etiologic factor. The symptoms resulting from this lesion embraced unilateral paralysis of the vocal cord and the left side of the face, with anesthesia of the pharynx and absent corneal reflex in the left eye; myosis of the left pupil and narrowing of the left palpebral fissure; peculiar response to the Bárány test; hemiataxy on the same side with alternate anesthesia of the left face and right side of the body. The sensory affection was of the dissociated type, pain and temperature sense being impaired, while tactile sensibility and muscular sense were intact. In addition, the patient presented an abnormal cardiac function. Various irregularities were manifested; bradycardia, auricular flutter, numerous extrasystoles and auricular fibrillation. Atropin administered over a long period was unable to influence the heart action in any way. With digitalis, however, a favorable reaction was immediately obtained. Hausman points out that the symptoms in this case, besides their value from a regional diagnostic point of view, have an important bearing on the relation of the vagus center to the cardiac cycle. It is this object which prompted a record of the case in detail.

Microscopic Brain Lesions in Dementia Praecox.—Southard discusses the idea of microlocalization, the antilocalizing views of psychologists, the anomalies in dementia praecox brains, makes a stratigraphical analysis of the cerebral cortex, and then points out the many effects of mental dissociation probably correlated with supracortical disease, the correlations of hallucinosis and catatonia with infracortical disease and the tendency to lobar and lobular focality of lesions. The microscopic data in four cases are presented under these heads, frontal, parietal and temporal. As far as the tissues of these four cases go, there is little or nothing inconsistent in the findings with the hypothesis that ordinary (nonphantastic) delusions are correlated with frontal rather than with otherwise situated lesions; but the supracortical type of delusions found in certain long-standing paranoiacs whose fine mental processes run in a quasi-normal manner, find no special correlation in any region, and the probable lines on which this problem is to be solved remain obscure.

As for auditory hallucinosis, the work seems to afford the expected correlation with temporal lesions. In one case, however, temporal lesions of considerable severity were not attended in life by hallucinations of hearing, but in this case there was also a severe supracortical disease of the temporal region, and it may be that for the production of hallucinations, some congress is necessary between the activation of the supracortex and infracortex, respectively. In previous work on this series, the brains had indicated a postcentral and superior parietal correlation for catatonia whose muscular hypertension was accordingly regarded as very possibly a kind of morbid kinesthesia. The present work suggests that the anatomic correlate is not merely to the postcentral and parietal regions, but still more specifically to the infracortical parts of these regions. Southard is in doubt whether these lesions are secondary in point of time to a noncell-destructive phase in the disease, or whether the lesions of which these microscopic effects are indicators began pari passu with the symptoms, that is, it remains a question whether it is a case of excess wear-and-tear process of cell mechanisms morbidly employed or whether the morbidity of neural function is an exact equivalent of the neuronic and neurologia morbidity.

Histogenosis of Multiple Sclerosis.—The four cases of multiple sclerosis on which Klingman's investigation is based were the usual cerebrospinal types. One patient died of acute mastoiditis; another died of pneumonia; one died in a convulsion and one from exhaustion following a number of epileptiform seizures. The average duration of the disease was ten years. All of the cases showed at necropsy a general adenitis with rather marked glandular enlargement in the bronchi and mesentery. One had healed tuberculous lesions in the left lung. The results of the examination of the brain and spinal cord of these patients are given in detail.

Subacute Multiple Sclerosis.—The patient who afforded the opportunity for Spiller's study was a male, aged 25. The symptoms began in February, 1915, with headache. In June, 1915, vision began to fail. In July, 1915, optic neuritis was observed. Weakness of the limbs developed gradually, with nystagmus, incoordination, vertigo, scanning speech, intention tremor and progressive impairment of gait until walking finally became impossible and mentality very feeble. Death occurred Dec. 21, 1916. Every section taken from any part of the cerebrum shows foci with lesions peculiar to this disease. The alteration in the cerebrum is very different from that in the spinal cord, and Spiller's findings confirm the statement of Marburg, namely, that cellular proliferation of glia is greater in the brain than in the spinal cord, and that the large glia cells are found more in the brain than in the spinal cord. The glia proliferation of the spinal cord is in large measure of the character of the overgrowth of glia seen in the replacement of nerve fibers from secondary degeneration caused by some lesion at a higher level; it is, therefore, chiefly fibrillar. In the cerebrum the glia proliferation is of a different character, it is chiefly cellular and is more recent than that of the cord. Mental failure usually does not precede the other symptoms of multiple sclerosis, it occurs later in the disease and the lesions producing it must be of late development. In Spiller's case the mental failure became pronounced and it is explained by the extensive alteration of the cerebrum. Therefore, the earlier changes of multiple sclerosis occur in the cerebrum. The lesions are usually less numerous in the cerebellum. The changes in the cerebrum in the case recorded by Spiller were in overgrowth of the glia causing a microscopic picture resembling that of a glioma. The relation of the foci to blood vessels has been asserted by some investigators, disputed by others—Spiller was unable to establish.

Syphilis of Nervous System.—In a series of 624 unselected cases of syphilis in all stages of the disease studied by Fildes and his associates, 18 per cent. had ten cells or over per cubic centimeter and 12 per cent. had from five to nine cells, inclusive, per cubic centimeter in the cerebrospinal fluid. In 80 per cent. of cases which had abnormal cerebrospinal fluid there was no clinical sign nor symptom of nervous disease, although twenty-nine cases had over 100 cells per cubic centimeter, nine had over 300 cells per cubic centimeter, and three had 1,000 cells or over per cubic centimeter. Many of the other 20 per cent. had symptoms so slight that they were of uncertain value in pointing one to central nervous system involvement. It was possible to detect slight but definite early changes in the eye-grounds of many of the positive cases in this series. That the changes in the cerebrospinal fluid were due to syphilitic disease of the central nervous system was demonstrated by the increase of cells, mostly lymphocytes but occasionally a few polymorphonuclears by the presence of a positive Wassermann reaction in the fluid, and by the fact that *S. pallida* can be demonstrated in the cerebrospinal fluid. Previous treatment has had no effect on the number nor on the severity of the abnormalities in the series. Intravenous treatment with arsenical preparations, during the period of observation, restored some patients to normal conditions; in nearly all it had a beneficial effect, but in a few cases the pathological processes in the central nervous system had not been checked even by repeated courses of treatment. The authors insist that the examination of the cerebrospinal fluid is indicated in every case of syphilis.

Arkansas Medical Society Journal, Little Rock

January, 1919, **15**, No. 8

Dangers of Mouth Infection. L. S. Johnson.—p. 141.
Avoided Subjects. C. H. Cargile.—p. 143.

Boston Medical and Surgical Journal

Feb. 6, 1919, **180**, No. 6

Case of Anthrax Septicemia from Accidental Inoculation of Shaving Wound. R. W. Angevine.—p. 149.
Influenza Epidemic in Quebec, Canada. P. Sainte-Marie.—p. 150.
Case of Calculus Anuria. N. Finkelstein.—p. 151.

Colorado Medicine, Denver

January, 1919, **16**, No. 1

Blood Transfusion. F. C. Buchtel.—p. 4.
Tuberculosis in Infancy and Childhood. E. Friedman.—p. 8.
Should General Practitioners Refer Patients to Opticians?. W. H. Crisp.—p. 16.

Journal of Bacteriology, Baltimore

November, 1918, **3**, No. 6

*Ozena and Distemper: Comparative Study of Coccobacillus Foetidus-Ozaenae and Bacillus Bronchisepticus. N. S. Ferry and A. Noble.—p. 499.
Proteolytic Enzymes of Soil Fungi and Actinomycetes. S. A. Waksman.—p. 509.
*Efficiency of Present Standard Agar for Estimation of Bacteria in Milk. H. J. Sears and L. L. Case.—p. 531.
Sterilizing Measured Amounts of Water in Autoclave. H. A. Noyes.—p. 537.
Classification and Nomenclature of Bacteria: X. Subgroups and Genera of Myxobacteriales and Spirochaetales. R. E. Buchanan.—p. 541.
*Nature of Reaction of *B. Coli* on Endo Medium. R. I. Kahn.—p. 555.
*Differentiation of Lactose Fermenting Anaerobes from B. Coli. R. L. Kahn.—p. 561.

Ozena and Distemper.—According to the cultural reactions and the agglutination and complement fixation tests made by Ferry and Noble there appear to be no reasons why Perez' bacillus should be confused with *B. bronchisepticus.* The organisms can be differentiated from each other by any one of several methods. The results of Horn and Victor's work with the complement fixation test were not corroborated by Ferry and Noble.

Standard Agar for Estimation of Bacteria in Milk.—The conclusions reached in this investigation by Sears and Case are that the present standard agar is not in itself a favorable medium for the growth of certain types of bacteria occurring in milk. The small quantity of milk added to the medium in plating 1 c.c. of a 1:100 dilution supplies the deficiency, but the amount added in plating the higher dilution does not do so. More consistent results are obtained if the dilutions of the sample higher than 1:100 are made in sterile 1:100 milk instead of in sterile water.

Simplified Confirmatory Test for B. Coli.—It is suggested by Kahn that in the conformatory test for *B. coli,* Endo slants be employed instead of Endo plates, and that the inoculations from the lactose fermentation tubes be made in the butt as well as on the slant of the Endo tubes, to permit aerobic and anaerobic growth. In the case of unknown waters, inoculations should be made from the fermentation tubes into Endo tubes after about fifteen hours incubation, even if there be no gas present in the fermentation tubes at that time. The advantages of the proposed modifications are: (1) The production of more typical colonies of *B. coli* on the Endo slant than of the Endo plate; (2) the detection of aerobic and anaerobic growth in the same test; (3) Endo agar tubes can be kept for three to four weeks without deterioration; (4) the inoculation from the presumptive fermentation tubes to Endo agar tubes before the production of gas in the former will often save several days time in establishing the presence of *B. coli* in an unknown water.

Differentiating Lactose Fermenting Anaerobes.—Anaerobic lactose fermenting organisms found in waters of the Southeastern area of the United States, appear to be unable to produce gas when grown anaerobically in Endo medium. In accordance with this finding, the differentiation of anaerobes from *B. coli,* is accomplished by Kahn as follows: Straight wire inoculations are made from the lactose fermentation tube showing gas, into the butt and on the slant of Endo tubes. After incubation (1) *B. coli* produces typical or semi-typical colonies on the slant and gas in the butt. (2) Anaerobes neither grow on the slant nor produce gas in the butt of these tubes. Employing the same medium, another procedure for the differentiation of anaerobes is described, wherein plates are employed instead of tubes.

Journal of Experimental Medicine, Baltimore

February, 1919, **29**, No. 2

*Blood Volume in Wounded Soldiers. Blood Volume and Related Blood Changes After Hemorrhage. O. H. Robertson and A. V. Bock.—p. 139.
**Id.* Use of Forced Fluids by Alimentary Tract in Restoration of Blood Volume After Hemorrhage. O. H. Robertson and A. V. Bock.—p. 155.
*Influence of Ether Anesthesia, of Hemorrhage and of Plethora from Transfusion on Pressor Effect of Minute Quantities of Epinephrin. P. Rous and G. W. Wilson.—p. 173.
*Bacillus Egens. A New Pathogenic Anaerobe in Gas Gangrene. J. L. Stoddard.—p. 187.
*Spirochaeta Hebdomadis: Causative Agent of Seven-Day Fever (Nanukayami). Y. Ido, H. Ito and H. Wani.—p. 199.
*Use of Final Hydrogen Ion Concentration in Differentiation of Streptococcus Hemolyticus of Human Bovine Types. O. T. Avery and G. E. Cullen.—p. 215.

Blood Volume in Wounded Soldiers.—The study reported on by Robertson and Bock includes a series of twenty-one cases of hemorrhage. Blood volume tests were made in fourteen cases, and with one or two exceptions the tests were performed repeatedly. The patients were of two types: those suffering (*a*) from the late effects of primary hemorrhage and (*b*) from secondary blood loss. Infection was present in the majority of instances. Blood volume tests made by the vital red method (Keith, Rowntree and Geraghty) on patients after hemorrhage showed a marked reduction in the total blood bulk. Not uncommonly the blood volume was less than 60 per cent. of the normal. The reduction after a certain point had been reached seemed to parallel the decrease in blood pressure. This relation of diminished blood volume to low pressure suggested a rough method of estimating blood volume from the change in blood pressure. By means of the blood volume and the hemoglobin percentage the actual amount of blood loss was determined. Cases of severe anemia showed a loss of as much as five sixths of the total hemoglobin. The effects of the different methods of transfusion and of injection of gum acacia on blood volume were negative. They restored the blood volume, only partially. Forced fluids by mouth brought about its complete restoration in a comparatively short time. The organisms did not restore its blood volume beyond a certain point when a further increase in it would, by dilution, have brought the hemoglobin percentage to a very low figure. In such cases a further increase of the blood volume occurred only when the hemoglobin rose. In cases with a low hemoglobin percentage as the result of a restoration of the blood bulk, an abnormally high blood pressure appeared, which continued until the hemoglobin percentage again increased.

Accompanying the low blood pressure seen shortly after hemorrhage was a well marked difference in hemoglobin per cent. between capillary and venous blood, with a relative concentration on the capillary side. As compensation occurred and blood pressure rose this difference lessened until the two readings were identical, indicating an even redistribution of the red blood cells. Reticulated red cell counts made in these cases showed that a marked bone marrow stimulation occurs after hemorrhage. The patients who were put on forced fluids, with consequent rapid restoration of blood volume, showed a much higher percentage of reticulated cells than those in whom no attempt was made to increase the amount of fluid in circulation.

Restoring Blood Volume by Use of Forced Fluids.—In many instances dilution of the blood occurs very slowly when the patient is recovering from hemorrhage. By putting such patients on a large fluid intake by mouth and rectum, Robertson and Bock found that their blood volume can be increased promptly and greatly. More than this, forcing fluids in cases where the amount of bleeding is difficult to estimate on account of the presence of a high hemoglobin percentage is of distinct value, since the dilution of the blood which results serves to show the extent of the hemorrhage through the drop in hemoglobin that it entails. With a total hemoglobin reduced to 25 per cent., or under, transfusion is needful. With the total hemoglobin above 25 per cent., the chief need is for increased blood volume, and if the patient's condition demands an immediate and large addition of circulating fluid, gum acacia solution should be given. If the condition is not so urgent, forced fluids by the alimentary tract are indicated.

Pressor Effect of Epinephrin.—Rous and Wilson found that ether anesthesia has a marked influence in diminishing the pressor response to minute amounts of epinephrin injected directly into the circulation. Hemorrhage also acts to lessen or abolish the response, and to a degree directly proportional to the lowering of the blood pressure it causes. In the exsanguinated animal an amount of epinephrin three or four times that sufficient to produce a pressure rise of 10 to 15 mm. of mercury, under normal conditions, may be entirely without effect. The response to large doses, on the other hand, is uninfluenced by ether or hemorrhage. These facts have a practical bearing not only on the employment of epinephrin to tide over collapse, but on its possible utilization in the future to raise a low blood pressure to the normal height and maintain it during a considerable period. The amount of epinephrin which under normal conditions will suffice to bring up the blood pressure may have little or no effect on an etherized individual or on one who has lost blood.

Bacillus Egens Found in Gas Gangrene.—The bacillus described by Stoddard occurred in a fatal case of gas gangrene, occurring in a wounded soldier. The cultures were derived from infected muscle at a considerable distance from the wound surface, and no other anaerobes were present in the muscle. The bacillus proved markedly pathogenic for guinea-pigs, producing extensive muscle lesions from which pure cultures of the bacillus were always obtained. Thus, in Stoddard's opinion, there is good proof that the bacillus found was the responsible agent in the fatal human case. Morphologically, the similarity of the bacillus to *B. welchii* is marked. Its cultural reactions are such, Stoddard says, that in a mixed culture with *B. welchii* it would escape notice, unless the most careful plating were done. When it has once been isolated however, it is culturally and pathologically distinct. Since the bacillus appears to be a new species, Stoddard has given it a new name. It differs from *B. welchii* by lack of fermentative powers; from *B. fallax* by lack of motility; from *B. oedematiens* and other anaerobes by lack of spore formation and of proteolytic power. Therefore, the name "egens" has been chosen.

Causative Agent of Seven Day Fever.—The authors analyze twenty-six cases of seven day fever seen by them in which the *Spirochaeta hebdomadis* was found both in the blood and urine.

Differentiation of Streptococcus Hemolyticus.—The work done by Avery and Cullen showed that the hydrogen ion concentration at which the human strains of *S. hemolyticus* cease to grow is different from that which limits growth of hemolytic cultures from bovine sources. This study comprises 169 strains of *S. hemolyticus,* of which 124 were of human origin. In the majority of instances these organisms were isolated from the throats, sputum, blood and long lesions of men suffering from postmeasles bronchopneumonia, or from the throats of those intimately in contact with these patients during an epidemic of pneumonia at one of the camp hospitals. In addition, several strains of *S. hemolyticus* from erysipelas, postpartum sepsis, meningitis and cellulitis have been included. It appears that the final hydrogen ion concentration of human and bovine hemolytic streptococci is a constant and distinctive characteristic of these organisms. The human type of *S. hemolyticus* reaches a final hydrogen ion concentration of p_H 5.2 to 5.0, and the bovine type of p_H 4.5 to 4.3. By the method described, by the authors, 95 per cent. of all the strains examined were accurately and rapidly classified by the determination of their final hydrogen ion concentration in 1 per cent. glucose broth.

Journal of Laboratory and Clinical Medicine, St. Louis

January, 1919, 4, No. 4

*War Deafness and Its Prevention. S. R. Guild.—p. 153.
*Decomposition of Arsphenamin. J. B. Rieger.—p. 181.
*Rôle of Tuberculosis in Dementia Praecox. H. I. Gosline—p. 186.
Modified Hecht-Gradwohl Test for Serum Diagnosis of Syphilis. W. J. Bruce.—p. 215.
A Simple Distilling Apparatus. A. L. Garbat.—p. 221.

War Deafness and Its Prevention.—Guild's previous articles on this subject were abstracted in The Journal, Oct. 27, 1917, p. 1472, Feb. 9, 1918, p. 418, and April 13, 1918, p. 1121. This paper describes the condition of the labyrinthine parts in the middle ears previously studied. Summarizing these articles from a practical viewpoint, these tests indicate that the measures tested may be divided into two definite groups on the basis of their efficiency in preventing the passage of the force of the detonation waves used; the variations within each group are less decisive. In the more efficient group are the Scientific Ear Drum Protector "Tommy," the Mallock-Armstrong Ear Defender, cotton soaked with glycerin, cotton soaked with petrolatum and the wax cone of the Italian navy type. In the less efficient group are dry cotton, the Elliott Perfect Ear Protector, and the Wilson-Michelson device.

Decomposition of Arsphenamin.—Rieger claims that commercial arsphenamin may contain an arseniureted methyl compound, which decomposes either in the ampule or in solution, with liberation of arsenous oxid or a cacodyl-like substance. Some preparations betray the presence of the arsine by their garlic-like odor when dissolved; others develop it only after having stood in solution for hours. According to the amount that may have accumulated, the dosage and the idiosyncrasy of the patient, a reaction marked by fall in blood pressure, dyspnea and cyanosis may occur. Once the drug has been injected, the occurrence of subacute or chronic arsenic poisoning is determined by the margin that exists or may be made to exist between its elimination and its reduction by the tissues. There is evidence that this reduction to metallic arsenic occurs too readily for safety with present commercial preparations of arsphenamin. Rieger suggests that the preparation of a neo-arsphenamin without the use of methyl alcohol and a study of its therapeutic behavior would do much to prove or disprove the hypotheses advanced by him.

Rôle of Tuberculosis in Dementia Praecox.—This study is based on 108 cases which have come to necropsy. The cases were thoroughly reviewed by Gosline and all those were discarded which gave a history of alcohol, syphilis, or infectious disease coming on at the onset of mental signs, or which gave anatomic evidence of syphilis, or which mentally might be classed under any other category than dementia praecox, or in which there was some doubt as to the diagnosis. Discarding all doubtful cases, there were left thirty cases which were retained as a basis for this study. Of this number twenty-one persons died of tuberculosis of various organs, chiefly of the lungs. One died of pulmonary abscesses from which tubercle bacilli were discovered in the smear. These twenty-two cases thus make a percentage of 73.3 dying of tuberculosis. The thirty cases showed something more convincing as to the connection between them and tuberculosis than the mere incidence of death from tuberculosis. Seventeen cases, or 56.6 per cent., showed a connection so apparent that they are considered by some to belong to the toxic-infectious group. Thirteen cases showed a course which may in a fairly definite way be considered to be bound up with a clinical or anatomic tuberculosis. Tuberculosis was demonstrated anatomically in all of them and the anatomic picture was the one to be expected from the course of the mental picture, the physical signs, such as weight and the subjective symptoms, and from the temperature chart. Hence, it is evident that there is a definite group of cases of dementia praecox in which tuberculosis may be considered to be a causative factor and, possibly, the causative factor. Gosline suggests that special complement-fixation tests on the blood and spinal fluid and special cultural methods applied to such cases should yield a high percentage of positive results and give an added advantage in early diagnosis.

Journal of Orthopedic Surgery, Boston

February, 1919, **1**, No. 2

Specialism and General Surgery. E. M. Little.—p. 63.
Changes Produced in Growing Bone After Injury to Epiphyseal Cartilage Plate. S. L. Haas.—p. 67. *To be continued.*
*Study of Buried Bone. J. F. Cowan and L. W. Ely.—p. 100.
Pseudocoxalgia Following Traumatic Dislocation of Hip in Boy Aged Four Years. R. C. Elmslie.—p. 109.
*Treatment of Chronic Osteomyelitis Due to Gunshot Injuries. C. F. Eikenbary.—p. 115.

Study of Buried Bone.—Numerous experiments are recorded by Cowan and Ely. It seems that a patella, or the fragment of another bone, imbedded fresh in the muscle of the animal from which it was removed, has a tendency to disappear, but does not do so for a long time. Its structure becomes less dense. The bone tissue itself may be replaced by fibrous tissue, especially at or near the circumference, or it may be absorbed. Absorption is the rule in the interior. Occasionally, typical rarefying osteitis by osteoclasts is seen. More frequently the process seems to be one of simple absorption, "halisteresis." The method of absorption is often difficult to determine, for about many of the trabeculae there are no giant cells, no leukocytic infiltration, and no increased vascularity of the marrow. Many of the cells disappear early from the bone. Others stain well after the expiration of a long time. Death of bone is the rule. A patella, with a complete investment of bone and cartilage, does not resist absorption better than a bone fragment whose marrow is exposed to the surrounding tissue. A blood supply is established in the marrow of the buried bone. The marrow has a tendency to become fatty and fibrous, though patches of lymphoid tissue may persist. It is engorged in animals who have died with an acute infectious disease, as is the marrow of normal bone in such circumstances. In other words, it is functioning as marrow. Cartilage becomes eroded at its surface, and is replaced by fibrous tissue. Sometimes it appears completely in areas. Its cells often stain well after a long time. Sometimes they die after a shorter time. The buttress underneath the cartilage almost always disappears early. Judging from appearances, the buried bone becomes smaller in size. Roughly, the changes in bone and cartilage are the same as those seen in arthritis of Type I, atrophic, or proliferative arthritis.

Treatment of Chronic Gunshot Wound Osteomyelitis.—A considerable number of these cases were treated by Eikenbary by open operation. He never uses the curet. The focus of disease is chiseled out and the wound is firmly packed with plain sterile gauze strips. No antiseptic gauze was ever used. At the end of twenty-four hours, the original packing is removed and the wound lightly packed with the same type of sterile gauze. Within a few days the packing merely extended through the soft parts. The whole aim of the operation is: (1) to get rid of all necrotic bone; (2) to avoid leaving any cavity at all; (3) to avoid spicules, rough areas, etc. Almost without exception, these cases healed within four weeks. Many were healed within three weeks, and in one instance healing was complete in two weeks.

Journal of Urology, Baltimore

December, 1918, **2**, No. 6

Chart for Recording Cystoscopic Examinations. F. Hinman.—p. 433.
*Absorption from Renal Pelvis in Hydronephrosis Due to Permanent and Complete Occlusion of Ureter. J. E. Burns and E. O. Swartz.—p. 445.
*Use of Provocative Vaccine in Determining Cure of Gonorrheal Urethritis. G. H. Pearson.—p. 455.
*Remote Effects of Absorption of Urine from Colon: Case of Traumatic Unilateral Uretero-Intestinal Anastomosis. A. B. Cecil and R. S. Cummings.—p. 469.
*Absorption of Drugs and Poisons from Ureter and Pelvis of Kidney. D. I. Macht.—p. 481.

Absorption from Renal Pelvis in Hydronephrosis.—According to Burns and Swartz, absorption takes place from the renal pelvis after complete ligation of the ureter and in long-standing hydronephroses. The path of absorption is by way of the tubules and through the capillaries of the glomeruli. The rate of absorption is prolonged, especially in case of hydronephrosis. During the first twenty-four hours the rate of absorption is frequently the same in long-standing hydronephroses as in the acutely distended pelvis.

Provocative Vaccine in Gonorrheal Urethritis.—Two small doses of vaccine, on successive mornings, are given by Pearson. In none of his cases did the vaccine produce a general reaction nor was any discomfort caused to the patient and no complications followed its use. On the morning of the first day a dose of 3 million of polyvalent gonococcal vaccine is administered subcutaneously, and at the same time the seminal vesicles, prostate and Cowper's glands are massaged thoroughly to liberate any toxins confined in them. The patient is then instructed to hold his urine from midnight of that night until a smear is taken the next morning and to do the same for each successive night until four smears have been obtained. On the morning of the second day, a dose of 5 million of the vaccine is administered. Should the case still be infected with the gonococcus, a positive smear may be obtained on one of the four mornings. Should there be no infection with the gonococcus, the smear will remain negative for that organism. One hundred consecutive cases are tabulated. The provocative vaccine gave a reliable result in 96 per cent. of cases, but Pearson advises that it should not be relied on solely; it should be used in conjunction with other routine tests. Besides being valuable to determine when a patient is cured, it is useful to differentiate between specific and nonspecific urethritis. Its use renders unnecessary the irritation of the urethra produced by strong provocative injections of chemicals.

Absorption of Urine from Colon.—In the case studied by Cecil and Cummings uretero-intestinal anastomosis resulted from traumatism. Marked toxic symptoms resulted from the absorption of urine from the colon. Nephrectomy was followed by cure.

Absorption of Drugs and Poisons from Ureter.—Aconitin, cocain, apomorphin and potassium cyanid Macht found to be drugs or poisons that are absorbed easily through the walls of the ureter and the kidney pelvis. These findings are of some practical importance and should be borne in mind by the practical urologist inasmuch as various drugs such as silver compounds, thorium, etc., are introduced into these organs for diagnostic and therapeutic purposes.

Laryngoscope, St. Louis

January, 1919, **29**, No. 1

Treatment of Laryngeal Stenosis by Corking Tracheotomic Cannula. C. Jackson.—p. 1.
Blood-Clot Dressing in Frontal Sinus Surgery. G. E. Davis.—p. 5.
Acute Retropharyngeal Abscesses in Children. J. M. Brown.—p. 9.
Spontaneous Recovery from Lateral Sinus Thrombosis. R. McKinney. —p. 13.
Vaccine Treatment of Ozena. H. A. Schatz.—p. 17.
Ozena. 1. Vaccinotherapy. 2. Results of Serologic, Antigenic and Food Anaphylactic Tests. M. S. Ersner.—p. 22.
Central Deafness. E. R. Carpenter.—p. 25.
Speech Elements in Tabes: Sign and Treatment. W. B. Swift and H. G. Beatty.—p. 28.
Negligent Speech. M. K. Scripture.—p. 31.
Rational Tonsil Surgery. W. W. Sauer.—p. 42.

Medical Record, New York

Feb. 8, 1919, **95**, No. 6

Cancer: General Mechanical Principles. F. R. Cook.—p. 223.
Clinical Course and Prognosis of Pneumonias of Recent Epidemic. T. F. Reilly.—p. 229.
Historical Sketch on Death from Drowning. C. G. Cumston.—p. 232.
Surgery and Psychasthenia. W. P. Manton.—p. 236.
*Use of Calomel in Treatment of Spanish Influenza. W. L. Mann. —p. 238.

Use of Calomel in Treatment of Influenza.—During the recent epidemic some rather striking results were obtained by Mann from calomel therapy in a few cases that were indirectly under his supervision. After observing over 3,000 cases of the so-called "Spanish influenza," it appears to Mann that the disease is essentially a toxemia. Detoxication is one of the many functions of the liver. Acting on the assumption that the toxemia might be combated to some extent by stimulation of the hepatic function by mild doses of calomel, the following procedure was adopted as a routine: (1) Calomel, ¼ grain, give every half hour for six or eight doses, followed by a mild dose of magnesium sulphate in the morning, or if the patient was very ill, an enema was substituted. (2) Calomel, 1/10 grain, was then given four times a day for three or four days. In many cases where the fever tended to show secondary rises, or to remain high, the administration of 2 grains of calomel in fractional doses was repeated with rather good results. In some cases nausea is caused by these fractional doses of calomel and, if so, it should be discontinued temporarily although in many cases nausea and vomiting is one of the pronounced symptoms of the disease. The wards which first adopted this treatment presented a much better appearance and a lower mortality rate than the other wards. Also, since the adoption of this therapy as a routine, the ward medical officers are unanimous in their opinion that beneficial action has resulted from its use. The best results were obtained in the early treatment of cases by this method. The cases of influenza that had progressed for some days failed to respond to calomel as readily as the incipient cases.

Missouri State Medical Association Journal, St. Louis

February, 1919, **16**, No. 2

*What Laboratory Can and Cannot Do in Diagnosis of Tuberculosis. R. B. H. Gradwohl.—p. 35.
*Myositis Ossificans Traumatica. T. G. Orr.—p. 44.
Ablatio Placentae; Case; Cesarean Section. W. H. Vogt.—p. 47.
*Effects of Use of Pneumatic Tools on Nervous System. F. M. Barnes, Jr.—p. 50.
Case of Linitis Plastica Hypertrophica (Gastric Cirrhosis-Leather Bottle Stomach). J. W. Ousley.—p. 53.

Laboratory Diagnosis of Tuberculosis.—The position of the laboratory in the diagnosis of tuberculosis is discussed by Gradwohl. He says that it is strikingly useful in such diagnosis; but that its usefulness is in direct proportion to the industry and intelligence of the clinician who uses it. In other words, it will serve well the physician who knows how to run down the focus when he has positive findings, and who knows how to weigh in the balance the negative results, that are inevitable in all specific microbic conditions at certain times and under certain conditions. The laboratory can aid the clinician in his diagnosis of tuberculosis of the upper respiratory tract, skin, joints, serous cavities, bones, digestive and genito-urinary system by means of the microscopic identification of the tubercle bacilli in sputum; its rare demonstration in pleuritic fluid, joint fluids, spinal fluid; its frequent demonstration in pus and discharges from the intestine; its occasional demonstration in the urine; better by animal inoculation in all but the pulmonary cases; by cultivation directly from sputum, and other tuberculous discharges from all points of infection by the Petroff method; by subcultures from lesions in inoculated animals; by blood cultures in the less common forms of acute miliary tuberculosis, and by complement fixation tests in tuberculosis anywhere in the body; likewise by tuberculin reactions of all classes of infection.

Traumatic Myositis Ossificans.—Abstracted in The Journal, June 15, 1918, p. 1889.

Pneumatic Tool Effects on Nervous System.—The case of the pneumatic hammer as used in the stone industry is the subject of Barnes' paper. Within the past two years complaints of ill effects from the use of the hammer have become prevalent in the Indiana belt. It has been claimed that the use of the hammer produced in the men a disease condition affecting the nervous system and leading even to paralysis, insanity or other form of complete incapacitation. So far as Barnes' study was concerned, the men using the pneumatic hammer in limestone were found to be in very good general health, none of the group examined showing any constitutional disease of any system, their troubles supposedly from the hammer being limited to a disturbance of the function of the left hand, which is commonly known as "white fingers" or "dead fingers." As a general rule, this condition occurs shortly after the men first go to work in the morning or until they have "warmed up." It occurs also during cold weather when the hands are exposed otherwise than in working. By swinging the arms or rubbing the hands the condition may be made to disappear, and when the hands are warmed the pallor rapidly gives place to diffuse flushing and reddening. Mental disease was not present in any subject examined, nor was there any physical disease which could, in any way, be attributed to the occupation.

Modern Hospital, Chicago

January, 1919, **12**, No. 1

What Sick and Crippled Men Are Doing for Ford Motor Company. N. McLeod.—p. 1.
Hospital Construction: 1918 and After. S. S. Goldwater.—p. 4.
Heart of Hospital. A. S. Bacon.—p. 6.
How American Nurses Helped Win the War. J. A. Delano.—p. 7.
Dictaphone in the Hospital. F. E. Chapman.—p. 10.
Record System at Presbyterian (N. Y.) Hospital. A. V. S. Lambert. —p. 12.
Influenza in Shipyards. P. S. Doane.—p. 17.
Effect of Past Year's Events on Dietetics. L. Graves.—p. 19.
Time-Savers for Accounting and Laundry Departments. L. H. Burlingham.—p. 21.
Symmes-Arlington Nurses' Home. W. C. Hill.—p. 26.
Progress in Industrial Hygiene and Medicine During Year 1918. F. D. Patterson.—p. 31.
Hospital Accounting. C. A. Porter and H. K. Carter.—p. 34.

New York Medical Journal

Feb. 1, 1919, **109**, No. 5

Prevention of Mental Defect. H. G. Matzinger.—p. 177.
Symptoms Caused by Granular Catarrhal Conjunctivitis. J. A. Kearney.—p. 181.
*Some After-the-War Problems of Medicine. I. S. Wile.—p. 182.
Influx of Venereal Diseases Through Merchant Marine. W. Moore. —p. 185.
Influenza Epidemic. A. A. Eshner.—p. 185.
Dogs and Cats as Source of Epidemic Coryza. H. H. Roberts.—p. 186.
*Dangers of Artificial Pneumothorax. B. Stivelman.—p. 187.
Pathological Conditions of Mouth and Their Treatment. C. J. Lyons.—p. 191.
Treatment of Craniocerebral and Cord Injuries of Warfare. C. G. Cumston.—p. 196.
Recent Gleanings Relative to Prophylaxis and Treatment of Influenza. L. T. de M. Sajous.—p. 198.

Feb. 8, 1919, **100**, No. 6

Commentaries on Hippocrates. J. Wright.—p. 221.
Human Foot, Normal and Pathologic, Exclusive of Most Types of Congenital Defect. E. Smith.—p. 225.
Teaching Surgery by Moving Picture. W. O. Owen.—p. 229.
Methods of Teaching Medicine and Surgery by Cinematograph. R. T. Taylor.—p. 232.
Strangulated Inguinal Hernia in Infants. J. E. Fuld.—p. 233.
*Pathogenicity, Cultivation, and Reproduction of Protozoon Parasites. A. J. Hinkelmann.—p. 235.
Roentgenologic Diagnosis of Cholecystitis and Adhesions. L. J. Friedman.—p. 241.
Letterman General Hospital, San Francisco, Calif. L. C. Mudd.—p. 242.
Flight Surgeon and Flying Ambulance. Care of Flier Section. U. S. Army Regulations.—p. 244.
Prophylaxis and Treatment of Influenza. L. T. de M. Sajous.—p. 246.

After-the-War Problems of Medicine.—As Wile sees it, the after-the-war problems of medicine are those which tend to improve the organization of medical systems for developing public health and public health officers. Every physician of the future in his private capacity may attend individuals, but in his public capacity as a citizen doctor he will be an instrument to preserve the public health. All the problems that have developed from the war are those which contemplate making possible and tangible medical cooperation rather than individual competition. Attention is to be focused on the mass rather than on the unit. Private personal health will be appreciated as a constructive phase of public health. The medical profession, in contemplating the enormity and variety of its problem, has an opportunity to rise to a higher plane of activity and service than it has even known. Wile says that it is safe to conjecture that the opportunities will not be cast aside, nor will the end-results be dissonant with those claims for service which have been the basic principle of a profession that claims its origin in divinity and first functioned through a priesthood.

Dangers of Artificial Pneumothorax.—Stivelman claims that sudden collapse during the operation for artificial pneumothorax is very infrequently due to causes other than pleural shock. Air embolism, puncture of the heart and cocain poisoning are very rarely met with, and spontaneous pneumothorax, although it may occur, is easily diagnosticated and can usually be prevented. Pleural shock occurs as often after careful anesthetization of the pleura as when no anesthetic is used at all. It is impossible to foresee it. When it occurs in a severe form it may be fatal but in the vast majority of cases recovery occurs more or less promptly. Amblyopia, aphasia and other distressing symptoms subside very rapidly. Stivelman holds that attempts at refilling, according to Forlanini, are contraindicated if the attacks reappear in subsequent sittings.

Pathogenicity of Protozoon Parasites.—Fifteen cases of protozoon infection are reported by Hinkelmann. He claims that infection by the ameba, the balantidium coli, the cercomonas hominis and the organisms of the trichomonas group may become generalized through the entrance of the organism into the circulation, after which metastatic lesions in various parts of the body may result. The kidneys are especially prone to the infection, on account of their function in the process of elimination. Remnants, or whole and living organisms, may appear in the urine, and in the case of amebiasis this is a valuable diagnostic point. The metastatic lesions, especially in amebiasis, may be manifested directly and apparently as the primary condition. Protozoon parasites may be recovered alive and active from the blood through the method of hemolyzing freshly drawn blood with distilled water and centrifuging. The balantidium coli may be recovered from the blood in culture by placing the blood into sterile distilled water in the proportion of 1 c.c. of blood to 200 c.c. of water. Amebiasis may be suspected in all cases of obscure fever showing a striking difference between morning and evening temperatures, with the leukocyte count remain steadily at about 12,000, regardless of the presence or absence of diarrhea or any suggestive intestinal symptoms.

In semitropical countries, sudden pain in the abdomen with rigidity and fever is not always indicative of appendicitis, but may be caused by an abscess formation due to protozoon metastasis: especially if the leukocyte count rises above 12,000 and does not agree at all with the acuteness of the case. Chronic languor, pallor, emaciation with an eosinophilia and a stubborn constipation, many mean a swarming infection of the trichomonas intestinalis high up in the intestinal tract. Skin eruptions may be caused by protozoon invasion of the blood. These protozoon parasites appear, in varying degrees, to have everything in common. They act alone, or in conjunction with one another; and conditions which predispose an infection by one do so for the others as well. Immunity cannot be established, but a valuable amount of resistance appears in all individuals, which combats the invasion in the beginning. When this resistance becomes broken down, the case becomes chronic in some form or other; or the patient succumbs to an overwhelming proliferation of the invading organism, in an acute atack, depending on with which one of the group he has become infected.

Public Health Journal, Toronto

January, 1919, **10**, No. 1

Immigration. A. H. Desloges.—p. 1.
Shell Shock. C. F. Tisdall.—p. 6.
Control of Cancer. G. R. White.—p. 13.
Winning Fights Against Autocracy, Alcohol and Anarchy. W. F. Crafts.—p. 25.

Social Hygiene, New York

January, 1919, **5**, No. 1

Part of Reformatory Institution in Elimination of Prostitution. M. P. Falconer.—p. 1.
Need for Industrial Homes for Women. A. T. French.—p. 11.
Four Million Dollars for Fight Against Venereal Diseases. H. H. Moore.—p. 15.
Educational Prophylaxis of Venereal Diseases. H. E. Kleinschmidt.—p. 27.
Social Reasons for Medical Prophylaxis. W. Clarke.—p. 41.
Year's Progress in Venereal Disease Control. G. Seymour.—p. 49.
Social Hygiene Legislation in 1917. J. Mayer.—p. 67.
Law Enforcement Program Applied. F. J. Osborne.—p. 83.

South Carolina Medical Association Journal, Greenville

January, 1919, **15**, No. 1

Annual Report State Health Officer. J. A. Hayne.—p. 335.
South Carolina Tuberculosis Sanatorium. E. Cooper.—p. 342.
State Board of Health Laboratory. J. R. Cain.—p. 343.
Influenza in South Carolina, 1918. C. V. Aiken.—p. 346.

Southern Medical Journal, Birmingham

January, 1919, **12**, No. 1

Better Pediatrics in South. L. T. Royster.—p. 1.
Use of Duodenal Tube in Extreme Cases of Ulcerative Colitis. A. Bassler.—p. 4.
Typhoid Meningitis. M. D. Levy.—p. 7.
*Medical Treatment of Gall-Bladder Affections. G. M. Niles.—p. 10.
Our National Health in Peace and War. J. C. Johnson.—p. 15.
*Evils of Spit and Spitting in Spreading Disease. B. L. Taliaferro.—p. 18.
Antimalaria Control Measures in Extracantonment Zones. C. L. Williams.—p. 22.
Free Dental Clinics—Traveling Dental Service for Rural Schoolchildren Instituted by North Carolina State Board of Health. G. M. Cooper.—p. 28.
Modifications of Some Civil Surgical Practices Suggested by Surgery of War. W. J. Mayo.—p. 31.
Congenital Deformities of Spine. Report of Case. J. P. and E. H. Baird.—p. 35.
Pyelitis Complicating Pregnancy. H. S. Black.—p. 39.
*Suspension for Laryngeal Work. R. C. Lynch.—p. 42.
Treatment of Gonorrheal Conjunctivitis. A. B. Mason.—p. 44.
Our Old Friend Death. P. B. Barringer.—p. 48.

Medical Treatment of Gallbladder Affections.—For the constipation or irregular stools, the following combination has afforded much relief in Nile's experience: fluidextract senna, 2½ drams; aromatic fluid extract cascara, 2½ drams; fluid extract podophyllin, 1½ drams; sodium and potassium tartrate, 2½ drams; simple syrup, 7 drams. One teaspoonful is taken night and morning as needed. For the gastric flatulence, Niles recommends the following carminative prescription; compound spirits lavender, 2 drams; zinc sulphocarbolate, 15 grains; magmae magnesii, 2½ ounces; water, enough to make 4 ounces. One teaspoonful is taken after meals, and repeated as needed for gas. For the general toxic symptoms, due probably to the lack of normal bile in the intestines, he has employed with satisfaction small doses of mercury protoiodid (1/10 to 1/3 grain), three times daily. Occasionally this drug produces intestinal cramps, or griping, so that the dose must be reduced, and in rare instances the teeth may become sensitive. As a biliary disinfectant, Niles has employed the following capsules: sodium succinate, 1½ drams; sodium salicylate, 1½ drams; sodium glycocholate, 45 grains; sodium taurocholate, 45 grains. Divide into sixty capsules and take two capsules three times daily, an hour and a half after meals, with a full glass of water. If the capsules are objectionable, the same ingredients may be dissolved in simple elixir, to which may be added a small amount either of compound spirits of lavender or of caramel. The polyvalent combined bacterial vaccines are sometimes worth while, but are not always dependable.

If the gastric secretions be markedly diminished and the duodenum become irritated, thus setting up a diarrhea, pancreatic preparations, liquor pancreaticus combined with alkalies, are of service. For the unpleasant itching there may be used ablutions with diluted vinegar, lemon juice, spirit of menthol or phenol. There also may be dusted on, the following powder: powdered camphor, 1½ drams; zinc oxid, ½ ounce; starch, 1 ounce. The diet should be free from irritating constituents, consisting principally of carbohydrates. But little fats should be permitted, and those easily emulsified, such as butter and milk. Other neutral fats cannot be cared for in the absence of a normal biliary flow; neither is it well to allow much meat, for excessive intestinal putrefactive processes may easily develop. Fruits, minus their rough or woody constituents, are generally advisable. The meals should be small, but frequent, and the general nutrition should be supported as far as possible. Hydrotherapy, when intelligently administered, is a valuable adjunct.

Evils of Spit and Spitting in Spreading Disease.—Taliaferro outlines what he terms a "catechism" on "spray borne diseases," and suggests that schoolchildren be taught thoroughly on this subject on the basis: "Teach the child and you teach the whole family." Taliaferro claims that 386,030 deaths occur annually from spray borne diseases.

Suspension for Laryngeal Work.—Lynch has the patient lie flat on the table with the head extended. The mouth is opened wide by placing an ordinary mouth gag in the left angle of the mouth; and this is steadied by the assistant who has only to keep the head extended in the middle line, there being no need of support, since the head is resting on the table.

Southwest Journal of Medicine and Surgery, El Reno

January, 1919, **27**, No. 1

Reclaiming Disabled Industrial Soldiers. H. E. Mock.—p. 1.
Vocational Education. Q. D. Corley.—p. 7.
Influenza as Public Health Problem. J. W. Duke.—p. 11.

Southwestern Medicine, El Paso

January, 1919, **2**, No. 13

Medical Treatment of Acute Follicular Tonsillitis. J. M. Britton.—p. 3.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

Oct.-Dec., 1918, **15**, No. 178-180

*Ruptured Aortic Aneurysms in Childhood; Report of Case. E. Bronson and G. A. Sutherland.—p. 241.
"Food Deficiency" or "Vitamin" Theory in Its Application to Infantile Beri-Beri. F. M. R. Walshe.—p. 258.
*Abnormal Naughtiness in Normal Children. J. Thomson.—p. 269.
*Case of Muscular Spasm in Child. R. C. Jewesbury.—p. 269.

Ruptured Aortic Aneurysms in Childhood.—A case is recorded by Bronson and Sutherland in which death was due to the rupture of a fusiform aneurysm of the ascending arch of the thoracic aorta in a child, aged about 6 years. The aneurysm apparently followed a partial stenosis of the aorta between the insertion of the ductus arteriosus and the left subclavian artery. That this stricture was a congenital anomaly was supported by the presence of a diaphragmatic hernia, subluxation of the joints, and defective cranial development. A brief discussion of the etiology of aneurysms in children is given. From the literature are summarized two instances of aneurysmal dilatation due to partial stenosis of the thoracic aorta, also five cases of aneurysms apparently due to congenital anomalies in the structure of the ductus arteriosus. In two of the latter cases, rupture caused death. Also on record are seven reports of death following rupture of aneurysms of the thoracic aorta in children, one case of rupture of the aorta without aneurysm, and two cases of rupture of aneurysms of the abdominal aorta.

Abnormal Naughtiness in Children.—A morbid exaggeration and perversion of the natural desire which all children feel for notice by their elders, is held by Thomson to be the cause of abnormal naughtiness in children. These cases are of essentially the same nature as those of "moral imbecility" in children who are in some degree mentally defective. The proper lines of treatment are clear enough, and when carried out consistently and thoroughly are rapidly and completely successful. They may be summarized as follows: (1) All severe corporeal punishment must be stopped—it never does any good. (2) Nobody must ever appear shocked, amused or even surprised at anything a child does. (3) His misdeeds are never to be alluded to, much less described, in his presence; and, lastly, he should be noticed and encouraged in every way when he is good and altogether ignored when he is naughty.

Case of Muscular Spasm in Child.—At the age of seven Jewesbury's patient began to suffer from weakness and wasting in the muscles of both legs. This condition gradually progressed, and she developed such a marked degree of talipes equinovarus that double tenotomy of the tendo Achillis was performed. The condition gradually recurred and the legs became very stiff when she attempted to use them, and walking became exceedingly difficult. Subsequently, about eighteen months after the legs began to be affected, she developed a similar loss of power with stiffness in the muscles of both arms and hands, and also in the muscles of the neck and spine. Any attempt to carry out a definite movement with the arms was made in a jerky way, rather like a child suffering from chorea. In grasping any object all the voluntary muscles of the body were thrown into a state of spasm. She appeared to have a certain amount of control over this spasm, and it was always much more marked when she was at all excited or agitated. She also had a persistent torticollis with a certain amount of spasm of the spinal muscles. The facial muscles were unaffected. No tremors or athetosis were present. The reflexes, both superficial and deep, were all normal; the knee jerks were only difficult to obtain when the muscles were in a state of spasm. The plantar reflex was flexor on both sides. The cranial nerves were normal. Sensation was unaffected. The blood gave a negative Wassermann test. The case seems to be an example of "dystonia musculorum deformans" (Oppenheim) or "progressive torsion spasm of childhood."

British Medical Journal, London

Jan. 18, 1919, **1**, No. 3029

*Climacteric of Life. G. Rankin.—p. 63.
*Bone Grafting in Ununited Fractures of Mandible. P. P. Cole.—p. 67.
Pelvic Measurement in Ante-Natal Clinics. A. W. Bourne.—p. 70.
Case of Traumatic Primary Sarcoma of Prostate. D. Newman.—p. 71.

Climacteric in Men.—Attention is directed by Rankin to the fact that while the climacteric period is a well recognized event in women, it is not so generally appreciated that men go through a similar readjustment of tissues, though after a less dramatic method, and probably at a somewhat later age, from seven to ten years later. A similar liability to the awakening of latent proclivities exists, and there would seem to be, at that period, as in women, an upset of tissue equilibrium conducive to the establishment of pathologic conditions. The immediate counterpart in man of the ovarian changes in women is probably to be found in the structural alterations which then become established in the prostate gland. Acute illness occurring within the limits of this critical time is attended with more than average risk, the protective powers of the body being just then apparently less able to resist germ or toxemic invasion. Among the many ailments that may assert themselves at the climacteric, three are selected by Rankin as commonly met with in men and three as more usually encountered in women. The conditions among the men are arteriosclerosis, interstitial nephritis, and diabetes; among the women—colitis, rheumatoid arthritis and hyperthyroidism. Illustrative cases are cited.

Bone Grafting in Ununited Fractures of Mandible.—This method of using a sliding bone graft taken from the jaw itself was described in The Journal, May 11, 1918, p. 1400.

Dublin Medical Journal

January, 1919, **147**, No. 565

Poisoning by Mustard Gas; Clinical Results. T. Gillman Moorhead. —p. 1.
Id.; Pathological Changes. W. Boxwell.—p. 7.
Aids to Medical Diagnosis. A. Whiting.—p. 14.
Clinical Case-Taking. R. D. Keith.—p. 14.
Gynecology. W. P. Graves.—p. 16.
An International System of Ophthalmic Practice. W. J. Pyle.—p. 18.
Twin Ideals: an Educated Commonwealth. J. W. Barrett.—p. 19.
Diseases of Children. G. M. Tuttle.—p. 21.
Local and Regional Anesthesia. C. W. Allen.—p. 22.
War Wounds of the Lung. P. Duval.—p. 23.
Glaucoma. R. H. Elliot.—p. 28.

Edinburgh Medical Journal

January, 1919, **22**, No. 1

*Wound Treatment by Living Cultures of Proteolytic Spore-Bearing Anaerobe Introduced into Wound. R. Donaldson.—p. 3.
Income Tax Information. J. Burns.—p. 35.

Wound Treatment with Bacteria Culture.—The fact that all successfully treated salt-bag wounds emitted a strong offensive odor, which was completely absent from other cases, led Donaldson to investigate the anaerobic bacteria present in wounds undergoing successful salt-pack treatment. The first case from which he made cultures yielded a mixture of two spore-bearing anaerobes which he ultimately succeeded in separating. One of these organisms possessed round terminal spores, the other oval subterminal ones. Pure cultures of the latter, grown for two or three days in cooked meat medium, developed the same peculiar odor which characterized successful salt-packed wounds. Further investigation of a series of cases so treated showed that this bacillus was present in all cases that were doing well and smelling, but that it was invariably absent from those cases which were making no progress. It established the fact that this particular odor might be regarded as an indicator of the success of the salt packs in any given case. Donaldson names the organism thus isolated, the "Reading bacillus." It is closely related to the *B. sporogenes* of Metchnikoff. Donaldson believes that this bacillus plays an important rôle in the healing of wounds because it disintegrates not only sloughs but also toxins of protein composition by means of an enzyme or enzymes which it produces. The enzyme is of the nature of a protease and can be demonstrated in filtrates obtained from broth cultures of the organism.

To prove the correctness of this theory a suitable gunshot wound was sowed liberally with a living culture of the bacillus, after which the wound was immediately repacked in the usual way. In three days time the patient's temperature had come down, the wound was emitting the characteristic foul odor associated with the active proliferation of the Reading bacillus and the patient was comfortable. The packing was left in situ untouched for some days, and within a day or two of its removal the wound was found to be absolutely clean, devoid of all sloughs, a brilliant scarlet color like fresh raw beef, and covered with healthly granulations. Since then, wounds of various kinds, such as septic knee joints, etc., have been sown, always with successful results and never with any ill effects. The advantages claimed for this method of wound treatment include: Simplicity of application, the avoidance of daily dressing and daily disturbance of the wound, the rapidity with which a sloughy wound becomes a healthy granulating surface, the absence of secondary hemorrhage, together with the remarkable and speedy improvement which takes place in the general condition of the patient, all of which mean considerable curtailment of the time generally spent by a wounded man in hospital.

Glasgow Medical Journal

January, 1919, **91**, No. 1

History of Influenza. W. R. Jack.—p. 1.
*Use of Moro's Percutaneous Innunction Test, and Von Pirquet's Cuti-Reaction Test. J. W. Allan.—p. 25. Concluded.

Moro and von Pirquet Tuberculosis Tests.—These tests are regarded by Allan as being helpful aids to diagnosis; nothing more. They have the advantage that they may be used without fear of doing harm.

Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1919, **22**, No. 1

Case of Acute Appendicitis in Native of Africa. H. W. L. Waller. —p. 1.
Filarial Infections in Gilbert and Ellice Islands. J. G. McNaughton. —p. 1.
*Quinin Administration. R. Howard.—p. 2.

Treatment of Malaria with Quinin Hydrochlorid.—For twenty years Howard has used the hydrochlorid and bihydrochlorid of quinin in the treatment of malaria. For routine prophylaxis he uses the hydrochlorid, either in tablet form or in solution, in which case he usually adds 1 minim of dilute hydrochloric acid to each grain of quinin to convert it into the bihydrochlorid. For the treatment of definite malarial pyrexia, he uses the bihydrochlorid. If a patient is very susceptible to quinin and complains much of tinnitus, this may sometimes be decreased by giving a few minims of dilute hydrobromic acid at the same time as the quinin. In the treatment of native infants with malaria, the tannate of quinin, given as a powder, in relatively large doses, has proved satisfactory.

Lancet, London

Jan. 18, 1919, **1**, No. 3

*Examination of Vermiform Appendix by Roentgen Rays. E. I. Spriggs and O. A. Marxer.—p. 91.
*Acute Appendicitis and Acute Appendicular Obstruction. S. T. Irwin. —p. 98.
*Control of Upper Fragment in High Fractures of Femur and Humerus by New Form of Splint. J. R. Lee.—p. 103.
*Meningococcus Broncho-Pneumonia in Influenza. W. Fletcher.—p. 104.
*Apparent Immunity from Influenza at Public School. G. E. Friend. —p. 105.
*Case of Pericardiotomy. T. P. Noble and A. B. Vire.—p. 107.
*Molybdenotungsten Arc in Treatment of Suppurative Lesions. B. M. Young.—p. 108.
Plastic Vocal Cord. F. N. Smith.—p. 108.

Examination of Vermiform Appendix by Roentgen Rays.—An account is given of the methods and manipulations which have been found useful in the roentgen examination of 300 appendices. Details are given of thirty-six cases in which the roentgenologist's reports are compared with the operative findings. In all of these cases the diagnosis was verified at the operation.

Acute Appendicitis and Acute Appendicular Obstruction.—The results following 131 consecutive urgent operations for acute disease of the apendix are analyzed by Irwin. This list of cases includes operations performed in the most unpromising surgical surroundings, both in respect of the operation itself and of the subsequent nursing, though there seems to be often more risk in the removal of a patient in certain types of the disease than in operating where few facilities are at hand and many things must be improvised. Out of the 131 cases, eighty-four had already gone to suppuration. All excepting one, and that one already perforated, were operated on as soon as seen. There were eighty-nine cases of acute appendicular obstruction, of which ten showed obstruction only, eighteen showed obstruction with a varying amount of gangrene of the wall, and in fifty-nine rupture of the appendix had followed the gangrene. In the obstructive cases it is Irwin's contention that the primary cause of the disease is obstruction of the lumen of the appendix. On examination of the appendixes removed at operation it was found that obstruction may be due to one of five causes: (1) concretions (fifty cases); (2) strictures (six cases); (3) kinks (rare); (4) bands; (5) worms, fruit seeds, and other foreign bodies.

Control of Upper Fracture Fragment.—Lee describes a pelvic-femur splint and a thorax-arm splint which he has used successfully in cases of fracture of the femur and humerus.

Meningococcus Bronchopneumonia in Influenza.—In the postmortem examination of thirty-six men who had died from bronchopneumonia following influenza, gram-negative cocci were the predominant organisms found by Fletcher in the lungs of eleven cases. All the men, with one exception, had been taken ill on board the same transport. In six cases these gram-negative cocci were Type II meningococci and in one case they belonged to Type I. In four instances the cocci were not tested by agglutination. In each of the eleven cases Pfeiffer's bacillus was found in symbiosis with the gram-negative cocci. It is evident that the meningococcus, like other "respiratory" organisms, may, when it occurs in conjunction with Pfeiffer's bacillus, produce a fatal bronchopneumonia.

Apparent Immunity from Influenza at Public School.—Quarantine, the Ormeston nasal drill and the use of a prophylactic vaccine were the methods used by Friend.

Case of Pericardiotomy.—Pericardiotomy was performed by Noble and Vine on the twelfth day after passage of a rifle bullet through the chest, with recovery of the patient.

Molybdenotungsten Arc in Treatment of Suppurative Lesions.—The cases selected by Young for treatment were chiefly those which were of considerable duration and which showed little or no improvement obtained by previous methods of treatment. The exposure given was generally three minutes at a distance of 50 cm. from the arc. In practically all cases the dressings used were gauze damped with sterile water; in a few cases normal saline was used. This was adopted as it was desirable to eliminate any cause of improvement, or the reverse, other than the effects of the ultraviolet rays produced by this arc. In the acute lesions, frost-bite, carbuncles, large areas of inflamed and ulcerated skin responded readily. In thirty-eight cases of generalized sores many were healed more speedily by this method of treatmnt. Cases of bubo which had been incised were treated from the outset with daily exposures of three minutes, and each healed in eight days, leaving a narrow healthy linear scar, comparing favorably with cases treated in the usual way. The lamp employed is the "meridian" automatic feed arc fitted with the new molybdenotungsten electrodes. It is connected in the usual manner with the ordinary house supply, and is a suitable contrivance for all voltages above 100 volts, both direct and alternating current.

Annales de Médecine, Paris

December, 1918, 5, No. 5

Influenza among Young Recruits. A. Gouget.—p. 417.
*Surgery in Diabetics. M. Labbé.—p. 428.
*Embryonal Tumors in Kidney Region. R. Lutembacher.—p. 435.
*Skin Reactions to Tuberculin, etc., G. Delamare.—p. 451.
*High Sugar Content of Spinal Fluid Outside of Diabetes. M. P. Weil.—p. 463.

Surgery for Diabetics.—Labbé declares that while it is advisable to refrain from operations on diabetics, especially when there is acidosis, yet it is better to operate than to let the patient die from septicemia or from the acidosis which it induces. When possible, the operation should be preceded by measures to reduce the hyperglycemia and the acidosis. This can be accomplished by a mixed diet with little meat and not much carbohydrates, if the patient does not exhibit acidosis. If there is acidosis, the diet must be restricted to dried vegetables or oatmeal or milk. Sodium bicarbonate should be given in sufficient amounts to render the urine alkaline. Another precaution is to refrain from imposing the usual fast just before the operation. It might be well besides to give 40 gm. of sodium bicarbonate before. The choice of the anesthetic is extremely important. Local anesthesia should be preferred; if this is not possible the next choice is spinal anesthesia. If a general anesthesia is necessary, ethyl chlorid should be the choice; chloroform or ether should never be used on a diabetic with acidosis. After the operation, enough sodium bicarbonate should be given to render the urine alkaline. It can be given by the mouth or by the vein. If there are evidences of severe acidosis, fully 100 gm. of sodium bicarbonate should be incorporated. As soon as nourishment can be taken, vegetable broth should be given or oatmeal gruel, soft mashed peas or beans or milk. The alkaline treatment should be continued until the acidosis has disappeared.

Tumors of Embryonic Type in Kidney Region.—Lutembacher comments on the strange succession of organs in the kidney region in the course of embryonal development, a succession of transformations which explain the frequency and the variety of tumors in this area. A case is described with twenty-five illustrations in which a woman of 36, exceptionally robust, suddenly developed severe dyspnea, the result of a left pneumothorax which spread to both lungs and proved fatal. The pneumothorax was the result of the bursting of numerous emphysema vesicles in the lungs, and there was also embolism of sarcomatous tissue. The cancerous emboli were traced to a number of renal tumors of embryonic type, each one suggesting that it was a lobe of the kidney which had been arrested in its growth. The spleen was also involved.

Skin Reactions.—Delamare has been studying the reaction induced by application of the skin tuberculin test, and also tests with plain horse serum, diphtheria antitoxin, and vaccines against typhoid and cholera. He was unable to detect any relation between the intensity of the reaction and the greater or less activity of the tuberculous process in the 300 tuberculous tested with the tuberculin skin test. The tendency to reactivation displayed by some old healed processes under the influence of the skin tuberculin test suggests that the cutaneous reaction is not altogether and simply a local process. Plain horse serum induced a reaction in the six tuberculous given the test. There were five positive reactions in ten tuberculous tested with diphtheria antitoxin, and in thirty-eight of thirty-nine tested with antityphoid vaccine and in ten of ten tested with anticholera vaccine. These reactions all differed essentially from the reaction to the skin tuberculin test.

Sugar in the Spinal Fluid.—Weil is inclined to attribute more importance to the sugar content of the cerebrospinal fluid than to any other element in it, as this reveals changes which otherwise might be overlooked. He says that the Bertrand technic for determination of the sugar content is reliable; applied to different specimens of the same individual fluid it gave him absolutely concordant results. It is based on the transformation of ferric sulphate into ferrous sulphate after it has been acted on by the precipitate of cuprous oxid resulting from reduction of the sugar by Fehling's reagent. The reoxidation of the ferrous sulphate into ferric sulphate is obtained with potassium permanganate. The technic is described in detail. In the spinal fluid from twenty-eight normal persons, the sugar content ranged from 0.42 to 0.60 gm. per liter. The normal average seems to be thus about 0.50 gm. When it is above this range, Weil calls the condition hyperglycorachy, and analyzes extensive experiences which indicate that this condition follows lesions or derangement of the peripheral motor or sensory neurons, in war neuroses, in shell shock, in epilepsy, etc. He theorizes to explain it as the result of congestion and of irritation of the sugar regulating ganglion in the floor of the fourth ventricle. With simple congestion of the meninges, the sugar content is increased, while it is decreased when there is bacterial activity. An increase therefore in the course of meningitis is a sign that the infectious process is becoming attenuated. In syphilitic meningitis the sugar content is generally increased. The sugar content of the spinal fluid may turn the scale in favor of an organic lesion when malingering is suspected.

Archives de Médecine des Enfants, Paris

January, 1919, 22, No. 1

*Nervous Complications of Influenza in Children. D'Espine.—p. 1.
*Infant Death Rate in the United States. P. F. Armand-Delille.—p. 9.
*Xerophthalmia in Infant from Deficient Diet. C. H. Sztark.—p. 23.
Weaning the Infant. C. H. Sztark.—p. 25.
Present Status of Fragilitas Ossium. J. Comby.—p. 31.

Nervous Complications of Influenza in Children.—D'Espine reports two cases in which the children of about 6 presented symptoms referable to the brain and meninges during influenza. The diagnosis of meningo-encephalitis was confirmed by the numbers of polynuclear leukocytes in the cerebrospinal fluid anl also by two symptoms—somnolency and paresis of the cranial nerves arising in the mid-brain—which are the main symptoms on which the clinical conception of lethargic encephalitis is based. As the fever dropped, an abrupt turn for the better followed, the improvement amounting to an actual resurrection. The only treatment seems to have been lumbar puncture, once in one case and three in the other. General convulsions developed in the course of established influenza in two little girls, previously healthy and the children died within twenty-four hours. The incessant clonic contractions were like electric shocks, but the lumbar fluid showed no signs of meningitis, although under high pressure. The influenzal toxin had affected the nerve centers beyond repair.

Child Welfare Work in the United States.—Armand-Delille has been studying in this country the ways and means adopted to reduce infant mortality, and this is his report. He was escorted on his mission by Dr. W. P. Lucas, professor of pediatrics at the University of San Francisco and chief of the Children's Bureau of the American Red Cross. Delille remarks that the child welfare work at Cleveland seems to be the best organized and shows the most complete results. In conclusion he calls attention to the visiting nurse system, the federation of welfare agencies, and the children's bureaus as worthy of special emulation.

Xerophthalmia in Infant from One-Sided Diet.—The child, 27 months old, had been fed exclusively for the last fifteen months on vegetable soup (*bouillon de légumes*), the family physician warning that cow's milk would kill the child. The infant often had green diarrhea and was always apathetic and drowsy. Finally xerophthalmia developed on this *diète maigre,* but it retrogressed completely by the tenth day after the bowels had been cleared with calomel, and cow's milk gradually commenced. By the third day it was taking pure cow's milk by the tablespoonful and then cod liver oil was commenced. The child gradually recuperated.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 8, 1918, **42**, No. 33

*Pleural Effusion in Typhoid. A. Lemierre.—p. 1001.
Herpes Zoster with Motor Disturbance. A. Lemierre and P. Lantuéjoul.—p. 1005.
*Chronic Amebic Hepatitis. G. Paisseau and J. Hutinel.—p. 1007.
*English Anti-Influenza Vaccine. L. Rénon and R. Mignot.—p. 1011.
*Aseptic Pleural Effusion in Influenza. Richet and Barbier.—p. 1016.
*Determination of Functional Capacity of Heart. P. Merklen.—p. 1018.
*Inorganic Murmurs in New Recruits. C. Aubertin.—p. 1022.
Ascension of Patella with Myopathy. P. Descomps and others.—p. 1023.
*Injury of Frontal Lobe. D'Oelsnitz and L. Cornil.—p. 1026.
Case of Macrodactylia. Laignel-Lavastine and M. Viard.—p. 1030.
*Experimental Typhoidal Fever. G. Blanc and J. Pignot.—p. 1035.

Purulent Pleurisy after Typhoid.—The special feature of this case was the association in a typhoid convalescent of the gas bacillus (*B. perfringens*) and the pyocyaneus in the purulent effusion following a hemorrhagic pleural effusion consecutive to an infarct in the lung, with final recovery.

Chronic Amebic Hepatitis.—Paisseau and Hutinel remark that acute hepatitis and abscess of the liver, the work of the ameba, are well known but a chronic form is not generally admitted. They have encountered a number of chronic cases however, developing in successive spurts but with no tendency to suppuration. The symptoms are those of subdiaphragmatic hepatitis. Pain in the right shoulder is more common than with abscess of the liver, and may keep up for months. There are also xiphoid and sternomastoid points on the phrenic nerve which are of differential value. In some of the cases the liver signs were slight and vague, the respiratory phenomena predominating. In some patients they extended to the other lung, and the diagnosis had been bronchitis or emphysema. The general condition keeps good, as a rule, but in some there was a tendency to progressive debility. In some cases the *poussées* of the disease had returned at intervals for six months or years or nine years in one case. The disease is eminently amenable to emetin but in the older cases prolonged treatment is necessary. To ward off danger from cumulative action, they inject 8 cg. per day for six days and then wait a month before resuming with 6 cg. for eight days, keeping on with the drug in alternate months, 4 cg., for ten days, repeating this three or four times.

The English Anti-Influenza Vaccine.—Rénon and Mignot report eight cases of grave influenza given this vaccine. Three of the men died. The effect of the vaccine was surpassed by that of antipneumococcus serum. The vaccine contains pneumococci, influenza bacilli and streptococci.

Aseptic Bloody Pleural Effusion in Influenza.—Richet and Barbier have had five cases of this kind. Between the fifth and the eighth days the signs indicate a pleural effusion but puncture brings nearly pure blood. This did not seem to modify the clinical picture unfavorably, four patients rapidly recovering. The fifth succumbed to his bronchopneumonia.

Disordered Heart Action.—Merklen has been sending soldiers with disordered heart action to a certain reeducation center where they were given three weeks of training, walks, fetching wood and water, etc. By the end of this time a good idea has been obtained of the true functional capacity of the heart.

Inorganic Murmurs in Young Recruits.—Aubertin found inorganic murmurs in from 20 to 30 per cent. of the class of 1920, and he is inclined to ascribe them to emotional causes, possibly demonstrating an instability of the heart action.

Symptoms from Injury of Frontal Lobe.—D'Oelsnitz reports a case of injury of the left frontal region with right hemiplegia and aphasia, and a transient change in character which he describes as *discordant euphoria*, the man growing more contented and smiling as his condition grew worse. Pupil changes were also observed but after evacuation of a pus pocket in the frontal lobe the character and pupils returned to normal.

Experimental Typhoidal Fever.—Blanc and Pignot injected some guinea-pigs in the peritoneum with 3 c.c. of blood from a typhoid case with fever of 105 F. The blood drawn from the arm was inoculated at once without defibrination. In two hours the guinea-pigs' temperature dropped lower than usual and then rose above normal, reaching 104 F. one day and keeping high for several days. This result was obtained in two of the three guinea-pigs, and suggests that with this technic experimental typhoid may be realized.

Lyon Chirurgical

July-August, 1918, **15**, No. 4

*Fractures of Jaw. L. Imbert and P. Réal.—p. 385.
*Loose Joints. L. Tavernier and Jalifier.—p. 399.
*Carrel Method. A. Rendu.—p. 426.
*Preventive Ligation After Disarticulation. C. Viannay.—p. 433.
*Capsulorrhaphy for Recurring Luxation. G. Rivière.—p. 437.
*Remote Results of Operations on Knee. R. Badolle.—p. 440.
*Tardy Arthrotomy of Knee. P. Trillat.—p. 445.
*Regeneration of Bone. G. Duhamel.—p. 449; J. P. Lamare.—p. 452.
*Washing Out Meningeal Spaces. Bellin, Aloin and Vernet.—p. 455.
*Primary Treatment of Fractured Femur. R. Leriche.—p. 489.

Fractures of Lower Jaw.—Imbert and Réal have charge of a center for reconstruction of the face and jaws, and they have had twenty wax casts made of the main types of fracture of the lower jaw in their more than 1,000 cases. These casts have been deposited in the military museum at Paris, but they give photographs of them here with the type of prosthesis required for each. Some of the fractures are like those observed in peace.

Loose Joints After Resections.—Tavernier and Jalifier have operated for flail joints in 5 elbow cases, 3 shoulder, 2 wrists and one knee case. The results were so gratifying in most cases that they now propose intervention in merely loose joints, not restricting it to actual flail joints. In some of the joints, a wire holding the bones loosely together answered the purpose. In cases with a gap in the bone, an autograft, held in place with wire, gave a solid joint (wrist) with good functional results. With the knee, solid ankylosis is all that it is possible to attain.

Carrel's Treatment of Fistulas, etc.—Rendu's experience at a hospital in the rear with 200 cases shows that the Carrel method is for immediate application after the injury. Later than this, it may give good results in superficial injuries, but it cannot be trusted for deep bone and joint processes. It failed invariably in femur fracture cases, in osteitis, osteomyelitis and their fistulas. The Carrel tubes do not provide sufficiently for drainage. This must always be ensured at the lowest point possible. The skin must be protected with petrolatum, and hemostasis must be ensured beforehand, as the antiseptic fluid dissolves clots and may start bleeding anew.

Hemorrhage After Disarticulation of Shoulder.—Viannay refers to infected cases. By preventive ligation of the subclavian a few days after the operation, he was able to forestall the secondary hemorrhage which had proved fatal in some of his cases.

Recurring Dislocation of Shoulder.—The dislocation had recurred nine times during the year, but no cause could be discovered except that the shoulder was a little loose. This was corrected by taking up folds in the abnormally large and loose capsule of the joint with interrupted sutures, passing the threads through the subscapular muscle. The intervention was a complete success; the young man was soon drilling with the other recruits.

Arthrotomy of the Knee.—Badolle emphasizes that at every operation on the knee the ultimate orthopedic result should always guide the surgeon. Only a typical resection at first ensures a solid, usable knee.

Tardy Arthrotomy with Primary Suture.—Trillat reports four cases in which an interval of from twenty-seven to thirty-one hours had elapsed after the injury before the operation on the knee. He sutured at once, although infection seemed to be installed, and healing occurred by primary intention in each case.

Regeneration of Bone.—In Duhamel's case a gap of 5 cm. in the shaft of the humerus became regenerated within two months, without any shortening of the arm. The fresh periosteum (ten hours) lined with particles of bone left from the sequestrectomy, shaved off with Ollier's sharp bone-scraper, and sheltered by the primary suture against mechanical, chemical or inflammatory irritations, was able to reconstruct this large shaft in this short period. He scrapes the sequester with a sharp rasp, the sequester held with forceps, and lines the periosteum with these scraps of bone. Lamare's success was equally good after a similar subperiosteal sequestrectomy. The gap was 2 to 5 cm. long in the tibia. Consolidation was complete in eight months.

Washing Out the Meningeal Cavities.—Bellin and his co-workers recall that diffuse meningitis originating in the ear—streptococcus meningitis—is often fatal, and heroic measures are justified. In a case described, osteitis of the tip of the petrous bone led to generalized meningitis. They punctured the lateral ventricle, after lumbar puncture, and then injected saline or antistreptococcus serum, tinted with methylene blue, into the lumbar trocar. The fluid emerged in the ventricle, thus rinsing out the meningeal cavity on its way. This is the fourth case on record of this lavage of the meningeal cavities, and the immediate benefit was most striking. The improvement lasted only a few days, and repetition of the lavage proved ineffectual, as the osteitis at this point had escaped discovery and had continued its course. Of the four cases on record, one may be considered a success. In the others, conditions outside of the meninges precluded recovery.

Experiments on the cadaver have confirmed the simplicity and feasibility of this rinsing out the meningeal cavities. General anesthesia is not necessary. From 100 to 400 gm. of fluid can thus be sent through from the lumbar puncture needle to the ventricular puncture needle, or vice versa, repeated as needed. A mechanical and a biologic effect can be realized simultaneously by combining saline with the special antiserum or some weak antiseptic. The procedure is not dangerous, they say, if the fluid is injected slowly, without pressure. In their case, slight transient dyspnea was the only by-effect. It probably corresponded to the passage of the fluid past the medulla oblongata. The benefit from the lavage amounted, they add, to an actual resurrection for four days. The one successful case was a meningitis after trephining. The micrococcus involved was the *M. pharyngis cinereus.* They punctured the ventricle through a small trephining opening, 3 cm. above the meatus of the ear, introducing the needle perpendicular to the external surface of the brain, to a depth of 3 cm., on a level with the temporal cornu (second temporal circonvolution).

Fracture of the Femur.—Leriche declares that it is the lesions of the soft parts, rather than of the bone, that render the prognosis grave, and treatment should be guided by this fact, as he describes in detail.

Lyon Médical

December, 1918, **127**, No. 12

After Victory! B. Lyonnet.—p. 529.
*False Appendicitis in Influenza. E. Villard.—p. 534.
Combined Wheeled Stretcher and Table. J. Molinié.—p. 543.
Malaria in Morocco. L. Langeron.—p. 547.

False Appendicitis in Influenza.—Villard has encountered several cases that presented the clinical picture of acute appendicitis and an operation seemed urgent at first. Study of the cases, however, showed that general symptoms, chill, malaise and feeling of distress had occurred hours before any local symptoms had developed. The local pain, besides, was more epigastric than appendicular, and it was paroxysmal instead of constant. The temperature curve resembles that with pneumonia and the pulse keeps relatively slow, in marked contrast to the high fever. The patients affected had all been in contact with influenza cases and the onset was typical of grippe. The abdomen is distended and palpation is painful throughout, most marked in the right iliac fossa. Vomiting follows and symptoms of intestinal obstruction. Respiration is regular and the tongue does not look like the appendicitis tongue. In twenty-four hours the symptomatic picture is complete. In all his cases the symptoms gradually subsided under treatment. The persistence of the asthenia and fever and the development later of pulmonary disturbances of the bronchopneumonic form confirmed the diagnosis of influenza. An operation is not only needless, but liable to be dangerous from the depressing effect of the anesthetic and its influence on the air passages. Enemas of boiled water with or without glycerin or oil and ice to the abdomen are about all that is needed.

Paris Médical

Jan. 4, 1919, **9**, No. 1

*Dyspepsia in Infants from Cow's Milk. A. B. Marfan.—p. 2.
*The Tuberculosis Preventorium for Children. Guinon.—p. 10.
Hygiene of Contagious Diseases. J. Renault.—p. 12.
*Digestive Disturbances in Infants. E. Terrien.—p. 17.
*Tabes in Children. P. Lereboullet and J. Mouzon.—p. 20.
Tin in Treatment of Mammitis. E. Chomé and A. Frouin.—p. 24.
*Treatment of Scoliosis. Joland.—p. 25.

Dyspepsia in Infants from Cow's Milk.—Marfan emphasizes the necessity for being on the alert to detect digestive disturbances which sometimes occur when cow's milk is substituted for breast milk. These disturbances often prove the first link in the chain which leads to athrepsia. The principal symptom is the putty stool. These stools may be normal in number but they look like soft putty or clay, and they scarcely soil the diaper. Scraps of mucus on the surface, the larger bulk, the strongly alkaline reaction, and the ammoniacal and putrid odor are special features. There is no diarrhea but there may be a tendency to constipation. The stools show an excess of alkaline-earthy soaps and of minerals, evidences of incomplete digestion of casein, and the bile pigments are present in the form of urobilinogen.

The outcome is generally favorable for infants over 6 months old, but younger than this, if breast milk and hygienic conditions are not available, especially if there is an inherited taint, the prognosis is almost inevitably fatal. Dropping the cow's milk in time puts an end to this dyspepsia from cow's milk, and sometimes all disturbances cease when the milk is diluted further.

Even when an infant is apparently thriving on cow's milk, the character of its stools, the multiple bacterial flora and high mineral content, show that the state of health is very close to the borderline of disease. The defective utilization of fat is shown by the insoluble calcium and magnesium soaps in the stools, the fat in them being thus lost for nutrition. There may also be some intoxication from absorption of the products of putrefaction. In treatment, if breast milk is not available, asses' milk is the next choice, and failing this, modified milk, such as buttermilk, condensed or sweetened skimmed milk. The digestive apparatus must be given a chance to rest, beginning with small amounts even of breast milk. The casein in cow's milk must be rendered easier of digestion, by cooking or enzyme action. The fat in the milk should be reduced, and some easily digested carbohydrate should be added. He gives minute directions for the diet under 4 or 6 months and above this age, warning against the tendency to give too much starchy foods to older infants. Otherwise starch dyspepsia follows on the cow's milk dyspepsia.

Antituberculosis Dispensary for Children.—Guinon insists that the preventorium should be for the entire family, not adults alone or children.

Digestive Disturbances in Infants.—Terrien warns that the new conceptions in regard to dyspepsia in infants are new only in name. An infant who is digesting defectively a certain ration of milk, digests it still more defectively when the amounts given are increased. This is a natural consequence that everyone knows, but Finkelstein has written reams about it as the "paradoxic reaction." The famous "albumin milk" is not keeping its promise; to feed casein and no carbohydrate is not tolerated by the organism, and Finkelstein and Combe soon advised addition of maltose, 30 gm. to the liter, while Combe adds up to 8 per cent. Thus modified, the "albumin milk" is practically the old familiar mixture of malt extract and curds (*bouillie de malt et lait caillé*).

Tabes in Children.—Lereboullet and Mouzon report a case of tabes from inherited syphilis in a boy of 15, who has been under observation for two years. The symptoms were not very pronounced but they were unmistakable. They began with right ocular paralysis and ptosis, and a violent cramp in the right leg lasting all day. The Argyll Robertson sign, the abnormal reflexes, and lymphocytosis in the spinal fluid confirmed the diagnosis. Under treatment the symptoms subsided except for the rigidity of the pupils and the loss of the tendon reflexes on both sides. The Wassermann reaction was positive as also in the lad's mother and younger brother. Two similar cases are mentioned further, the ocular paralysis and abolition of the tendon reflexes being accompanied by a positive seroreaction. The favorable modification under specific treatment confirms the diagnosis, and suggests that possibly tabes in adults may in certain cases be due to inherited syphilis. More careful examination of children might reveal this tendency to tabes in time to ward off serious trouble later. The alarm should be sounded with persisting migraine, tendency to spasmophilia, nocturnal incontinence of urine, simple transient "absences" as manifestations of abortive epileptiform seizures, inability to keep up with his class in school, tics, a little choreic instability, disturbance in vision, or cramps in one limb. In their patient there was no disturbance in gait, even with the eyes closed.

Gymnastic Exercises in Treatment of Scoliosis.—Joland reaffirms the advantages of the proper gymnastic exercises in treatment of scoliosis as the only means to reestablish the normal balance of the spine, suppressing the causes of asymmetry and combating the cause of the deformity. They should be kept up at home for years. The shape of the bone is secondary to the function. Nageotte has reported the case of a girl with one leg left 4 cm. shorter than the other after an accident. The scoliosis induced to keep from falling resulted in modifying the shape of certain vertebrae to correspond.

Presse Médicale, Paris

Dec. 19, 1918, **26**, No. 70

*Arteriovenous Aneurysms. L. Chevrier.—p. 645.
*Symptoms in Arm after Aerial Shock. P. Sollier and P. Courbon.—p. 646.
Chancre with Fuso-Spirilla Association. Payenneville.—p. 647.

Dec. 23, 1918, **26**, No. 71

Opening Course on Dermatology and Syphilis. Jeanselme.—p. 653.
*Grafts of Dead Nerve Tissue. L. Sencert.—p. 656.
*Paradoxic Electric Contraction. R. G. Palmes and A. Hanns.—p. 659.
*Lethargic Encephalitis. Chartier.—p. 660.
General Anesthesia and the Circulatory Apparatus. L. Binet.—p. 661.

Arteriovenous Aneurysms.—Chevrier reviews his extensive experience with the clinical and the anatomic transformations of arteriovenous aneurysms. In two of his cases the arteriovenous aneurysm became transformed into an arterial form, and this retrogressed spontaneously and totally in one case, partially in the other. The clinical and the anatomic transformation do not always apparently coincide.

Edema of Hand and Arm.—Sollier and Courbon have recently encountered four cases in which a seton bullet wound in the back of the neck was followed by edema of the hand and fingers, with mydriasis suggesting pressure on the sympathetic nerve. The nerve could not have been directly injured by the projectile.

Grafts of Dead Nerve Tissue.—Sencert discusses the preferable technic for bridging gaps in nerves in a way to permit regeneration, and describes favorable results in his fifteen operations of the kind with the *hétérogreffe morte*. His first operation was done in March, 1918, and the interval since has been too short for decisive judgment as to the functional outcome. But in two of the cases there is a beginning of functional restoration which is most encouraging, and in one other case an operation, less than three months later, revealed that the continuity of the nerve has been completely reestablished with no cicatricial tissue production. Illustrations of this case are given. The sciatic nerve from a calf was inserted to bridge a gap of 2 cm. in the median nerve. The bundles of nerve fibers are approximated and sutured separately, a "fascicular graft." The technic is described in detail.

Paradoxic Electric Contraction.—Palmes and Hanns noted this paradoxic contraction by unipolar tetanization in cases of injury of peripheral nerves, central lesions and reflex disturbances, but never in purely psychic motor disturbance.

Lethargic Encephalitis.—Chartier insists that all other forms of encephalitis should be distinguished from this "lethargic" type, before we can accept it as a new entity. He recalls further that Leichtenstein and Strümpell in 1892, called attention to the frequent grippal origin of acute hemorrhagic encephalitis. F. Raymond also has emphasized "that in epidemics of influenza some cases are encountered in which from the very first the patients present symptoms of acute encephalitis with the signs of grippal infection."

Progrès Médical, Paris

Dec. 14, 1918, **33**, No. 50

*Camphorated Oil in Influenza. Loeper and Fumouze.—p. 417.
Clinical Aspect of Streptococcus Wounds. J. Fiévez.—p. 418.

Dec. 21, 1918, **33**, No. 51

Treatment of Influenza. Loeper and Grosdidier.—p. 427.
*Hexamethylenamin in Pleurisy. Loeper and Grosdidier.—p. 427.
Treatment of War Wounds. L. C. Bailleul and G. Worms.—p. 428.

Intravenous Injections of Camphorated Oil in Influenza.—Loeper and Fumouze refer to the form of influenza characterized by asphyxia, a vaso-paralytic or vago-paralytic form. In the last two months this grave form amounted to 10 per cent. of their total cases. With venesection, abundant and repeated, followed by subcutaneous or intramuscular injection of sugar or epinephrin in physiologic solutions, and daily intravenous injection of 2 c.c. of 10 per cent. camphorated oil, from 55 to 60 per cent. of their thirty-eight patients in this grave group recovered.

Hexamethylenamin by the Vein in Pleurisy.—Loeper and Grosdidier report that they have applied this treatment in thirty-two cases of pleurisy, and recovery followed in from seven to twenty-five days with from five to ten or twelve injections. They say that it seems to promote the diuresis and the resolution of the effusion, while the accelerated elimination of toxic products aids in reducing the fever.

Revue Médicale de la Suisse Romande, Geneva

December, 1918, **38**, No. 12

*Vicious Circle After Gastro-Enterostomy. H. Vulliet.—p. 673.
Digitalis Preparation Effectual by Rectum. J. Morin.—p. 694.
*Malignant Influenza. G. A. Krafft.—p. 703.

The Vicious Circle After Gastro-Enterostomy.—Vulliet reports eight cases with illustrations to show the various mishaps liable with posterior gastro-enterostomy. In three out of four of the cases a secondary (anterior) gastro-enterostomy restored clinically normal conditions. Mobilization of the left portion of the duodenum is susceptible of rendering real service in gastro-intestinal surgery. In case of the vicious circle, it renders entero-anastomosis possible and this puts an end to the vicious circle. In fact, without it, entero-anastomosis is scarcely possible, after a correct posterior retrocolic enterostomy. It is a simple matter on the cadaver but may be difficult and risky in the living body. By left mobilization he means severing the duodenum at the pylorus. This releases the afferent loop of the duodenum in the gastro-enterostomy, and this pylorus end is swung around and sutured to the left aspect of the efferent loop.

A new anterior gastro-enterostomy is simple, easy and rapid and answers the desired purpose, breaking up the vicious circle equally as effectually. In some of the cases he describes, the stomach did not function well and evacuation was sluggish by any route. His one failure was in a psychopath with localization in the stomach. Only transient benefit was realized, and the woman of 45 died in a gradual decline three years later. Vulliet exclaims on the lack of any certain means of distinguishing between such cases and those in which a stomach lesion escapes our means of investigation and yet could be repaired by an operation.

Malignant Influenza in Swiss Troop.—Krafft says that 6 per cent. died of the 500 men in a Swiss troop stationed at a remote gun range, all but 20 of whom had contracted influenza. The influenza was often of a malignant type, with intense cyanosis. The measures which proved most effectual were venesection plus transfusion, and, at the beginning, 0.15 neo-arsphenamin. This had no action when the disease was at its height, but towards the close it displayed a very useful action again. Opium was proscribed throughout, and no food was given to tax the digestion while the influenza lasted, but sugar solution was injected freely.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 21, 1918, **48**, No. 51

*Severe Chronic Diarrhea. M. Düring.—p. 1697.
Traumatic Luxation of Ulnar Nerve. J. Dubs.—p. 1711.
*Transfusion of Blood after Abdominal Gunshot Wound. A. Fonio.—p. 1719.

Severe Chronic Diarrhea.—Düring describes cases, in a girl of 10 and three adults, which in many points resemble the severe alimentary diarrhea of infants. One man of 44, a prisoner of war in Germany, developed severe chronic diarrhea with great depression, but no pains or fever. No benefit was derived from tannin or opium preparations or charcoal. A bleeding bunch in the rectum was assumed to be cancer and the man was sent to Switzerland to be interned, where the rectal lesion subsided under silver nitrate. In all the cases in this group there was a history from youth of substandard digestive functioning, and the patients showed a tendency to anemia, meteorism in the upper abdomen, and a gray tint of the skin. The stools in each case showed defective digestion of carbohydrates, the high acidity testifying to abnormal fermentation, which was responsible for the meteorism and the excessive peristalsis. The correctness of this assumption was demonstrated in each case by the benefit from dietetic restrictions, avoiding carbohydrates. Any meal of potatoes or tapioca was liable to bring back the diarrhea. Carbohydrates have to be banished as completely as from the diet of diabetics. Further all cellulose-containing foods have to be scrupulously avoided. Lean meat, fish, eggs, cheese and cane sugar have to be the sole reliance. Coffee and tea with cream can be allowed, but no milk on account of its lactic acid content. Kefir is very useful. It is better to warm it. In the very severe cases, albumin milk may have to be resorted to.

He begins treatment with a purge, allowing only black tea, and for two or three days only fluid food. He warns expressly against gruels. The fluid stools soon stop, and meat and eggs soon bring putrefaction bacteria to predominate. In a few days the stools become formed and alkaline. In obstinate cases, calcium chlorid may hasten this transformation of the reaction. The amounts of the foods allowed can be rapidly increased and after a few weeks, zwieback and flour dishes may be cautiously allowed under constant supervision. Noodles, grits and rice may be taken without harm in time, but the intolerance for potato long persists, and it may bring on the gravest relapses. Institutional treatment is almost indispensable, even more so than for the graver cases of diabetes. Medicinal treatment is of little use except that opium may aid at first in checking the exaggerated peristalsis. With ulcerative colitis it can be given with belladonna by the rectum. Morphin may be useful to quiet the excited patient. After recovery, the patients long have to beware of foods containing cellulose. A limit of tolerance is finally reached, and keeping within this they have no further trouble. His patients in this group have been free from all disturbances for months.

Transfusion of Blood After Abdominal Injury.—Fonio reports the case of a young hunter who took up his gun by the muzzle and shot himself in the ileocecal region. The laparotomy three hours later showed fourteen perforations of the small intestine. The 95 cm. segment of intestine with twelve perforations and two holes in the mesentery was resected, and the two other perforations were sutured. The abdomen was flushed with saline until it came away clear. After the operation, 500 c.c. of saline with 7 drops of epinephrin were infused, the legs wound and raised, and tetanus serum, camphor, etc., injected. Six hours later, the radial pulse having become imperceptible, 250 c.c. blood from the patient's sister were transfused, and by the eighth day the young man was ready to return to work. He would undoubtedly have succumbed if it had not been for the transfusion of blood. The transfusion was done by the citrated method. The 250 c.c. blood sufficed to restore the pulse permanently. Fonio explains this benefit as due to the breaking up of the vicious circle by the influx of fresh blood supplying the heart muscle with blood through the coronary circulation, and thus giving it the nourishment needed to enable it to resume its task. This in turn supplied all the organs with nourishment and started normal functioning anew throughout the organism. He advises continuing the transfusion until the pulse is full and strong again. This occurred with 250 c.c. in his case. The patient vomited afterward, and albumin and casts appeared in the urine. Healthy, robust donors closely related to the patient, transfusion of not over 250 c.c., and waiting to note the effect of this, will ward off injurious by-effects. In urgent cases even the general practitioner need not hesitate to apply it; to facilitate this, he gives illustrations of the details of the technic. He ascribes the priority to Agote.

Gazzetta degli Ospedali e delle Cliniche, Milan

Oct. 3, 6, 10, 1918, **39**, No. 79-81

Significance of Bradycardia in Convalescence from Lobar Pneumonia. G. Binetti.—p. 735.

Oct. 13, 17, 20, 1918, **39**, No. 82-84

Prognosis in Influenza. G. Stradiotti.—p. 742.

Oct. 24, 27, 31, 1918, **39**, No. 85-87

*Slight Chronic Fever Traced to Pharynx. U. Baccarani.—p. 749.

Chronic Fever of Pharyngeal Origin.—In the three cases described, a slight fever keeping up for months was finally traced, by exclusion, to chronic inflammation in the pharynx not severe enough to have attracted the patient's attention. In the three cases reported the appendix was tender and appendicectomy had been advised but the subsidence of the fever under treatment of the throat alone demonstrated that the appendix was not the main factor. The general health and the appetite kept good and there was nothing to suggest tuberculosis otherwise. No special germs could be cultivated from the throat.

Riforma Medica, Naples

Dec. 7, 1918, **34**, No. 49

Dissociated Median Paralysis. L. Torraca.—p. 970.
*Throat Secretions in Influenza. S. Musu and C. Russo.—p. 972.
Hemorrhagic Syndromes in Influenza. G. Oldano.—p. 973.
Influenza. A. Monti.—p. 974.
Different Icterohemorrhagic Spirochetoses. G. Molinari.—p. 978.
*Right of Injured Workmen and Soldiers to Refuse Operation. E. Aievoli.—p. 980.

Nose and Throat Secretion in Influenza.—Musu and Russo state that in seventy-one cases of influenza in soldiers, sailors and civilians, the germ isolated recently by Scalone was found in the tonsils or nasopharynx in sixty. It was in pure culture in fifty-five. He calls it the *Micrococcus metatetragenus.* In eleven cases only streptococci and staphylococci could be cultivated.

Right of Injured Soldiers and Workmen to Refuse an Operation.—Aievoli refers to treatment predominantly surgical which would presumably restore greater earning power. He discusses the views advanced by competent authorities in Italy, France and elsewhere. The only solution, he says, seems to be an uplift of the psychologic reasoning of the classes involved. He warns, however, in conclusion against allowing correcting surgery and orthopedic treatment to be in the hands of any but the most competent, who have long given evidence of a "strict surgical conscience."

Brazil-Medico, Rio de Janeiro

Nov. 2, 1918, **32**, No. 44

Brazilian Gregarinas. (Bothriopsis Oswaldocruzi n. sp.), G. Hasselmann.—p. 345.
Lepra Bacillus Found in Ticks. M. Rudolph.—p. 345.
Ankylostomiasis in Brazilian Navy. B. de Figueiredo.—p. 345. Conc'n.

Nov. 9, 1918, **32**, No. 45

Autogenous and Polyvalent Vaccine Therapy plus Sugar Injections in Treatment of Influenza. H. de B. Aragão.—p. 353.

Medicina Ibera, Madrid

Oct. 19, 1918, **5**, No. 50

Surgical Treatment of Pulmonary Tuberculosis. J. de Palacios y Olmedo.—p. 48.
A Needle in the Finger. L. S. Tamargo.—p. 50.
Minor Skin Lesions. Sicilia.—p. 51.

Oct. 26, 1918, **5**, No. 51

Exostosis on Jaw. C. Roe.—p. 74.
Interstitial Hemorrhages After Intramuscular Injections. E. A. Sainz de Aja.—p. 75.
Iodin in Therapeutics. VII. A. S. Alvarez.—p. 76.

Progresos de la Clinica, Madrid

November, 1918, **6**, No. 71

*Architecture of the Pelvis in Man. M. Serés.—p. 265.
*The Retrococcygeal Diverticulum. D. V. Juaristi.—p. 311.
*Stenosis of Urethra. S. Pascual.—p. 322.

Architecture of the Pelvis.—Serés' long article has fifty-three illustrations showing the various stages of development of the pelvis and the soft parts and spaces, and pointing to more effectual routes for drainage, etc.

Retrococcygeal Diverticulum.—Juaristi has encountered a number of curious malformations resulting from the persistence of embryonal disposition of the terminal spinal cord. In some cases there was a depression or invagination of the skin over the coccyx, sometimes entailing a fistula; in other cases causing neuralgia, paralysis, or enuresis from dragging on the lower nerve roots. The diagnosis is simple and excision promptly cures the disturbances. Twelve illustrations show the different types.

Stenosis of the Urethra.—Pascual warns that retention should be ascertained by palpation of the bladder, not by introducing the catheter as the first step. And when the catheter is introduced, it should be a Guyon explorer, not the evacuating catheter. The stenosis thus ascertained, sitz or general hot baths, belladonna rectal suppositories, hot enemas and cataplasms with laudanum, in the hypogastric region, may induce micturition. If not, and if the stenosis is impassible, then the bladder must be punctured, which, he declares, is an absolutely harmless procedure and can be repeated many times. After the congestion has subsided, the stenosis may allow the passage of the catheter. If not, surgical measures are necessary as he describes in detail.

Siglo Medico, Madrid

Oct. 19, 1918, **65**, No. 3384

Clinical Conception of Bronchitis. S. Hergueta.—p. 849.
Forensic Importance of Finger Prints. A. Cortezo Collantes.—p. 852.
Incompatibility of Quinin and Acetyl-salicylic Acid. J. Luis Yagüe y Espinosa.—p. 856.

Grèce Médicale, Athens

January to June, 1918, **20**, Nos. 1 to 12. French Supplement to *Iatriki Proodos*

*Adiposis Dolorosa. J. Cecikas.—p. 1.
*Effectual Treatment of Malaria. J. P. Cardamatis.—p. 5.
Rheumatismal Origin of Certain Heart Symptoms. Parturier and Maroulis.—p. 18.

Cure of Adiposis Dolorosa.—Cecikas reports a case in a man of 32, married for six months, which, he thinks, throws light on the etiology of the disease. The pressure of the man's body against his desk explained the unusual location of the lipomas, and the immediate effect of an injection of pituitary extract on retention of urine confirmed the influence of the pituitary on the innervation of the bladder, but the primal factor in Dercum's disease seems to be some abnormal or lacking hormone from the organs of reproduction. This seems to upset the normal balance in the chromaffine system. His patient was clinically cured, even to the retrogression of the lipomas, by systematic treatment with extract of thyroid 1 part; extract of pituitary, 1 part, and of ovary 2 parts, supplemented by a vegetable diet and exercise in the country. Whenever this treatment was interrupted, the whole set of symptoms returned, even including some of the tumors. The patient learned to make his organotherapeutic products himself, making a cold extract of thyroid and testicles, 1:4, from sheep 1 or 2 years old. (Extraction cold; 50 c.c.; phenol, 0.05.) He took a teaspoonful of this extract morning and evening in warm soup. Cecikas recalls that Dercum in describing his first case of adiposis dolorosa noted its connection with the thyroid.

Effectual Treatment of Malaria.—Cardamatis insists that to give quinin in an ineffectual manner not only perpetuates malaria but drives the public to quacks. He has worked out a technic which has radically cured 98 per cent. of all types of malaria, and his experience and experimental research on the human have absolutely confirmed its efficacy, he reiterates. He has been in charge for many years of the state campaigns against endemic malaria at different points in Greece, and also of the campaigns under the auspices of the Hellenic Antimalaria League. Tens of thousands of malaria subjects have passed through his hands and been followed long enough for the ultimate outcome to be known. He declares that administration of quinin by the *mouth* is as effectual as by injection. His technic was worked out by comparative study of the effects on different series of six or eight groups of up to sixty persons each, with subgroups of eighteen with one of the three types of hematozoa in the blood, and two with mixed infection. The results in each series are grouped in a table for comparison. The effectual method proved to be as follows: He begins the course with 1.60 gm. at the first *moment* of defervescence, during the sweating stage. This dose is divided in two parts, taken at a half hour interval. After this, for eleven days, 1.50 gm. is given, seven or eight hours before the attack. Then suspension for four days, after which 1 gm. is taken each evening, not long before retiring, and this is repeated for eight consecutive days. Then suspension for a week, after which 1 gm. is taken at bedtime the sixth and seventh days of each week. This procedure was rigorously followed for two months in the case of vivax infection, benign tertian, and for three months with praecox or mixed tertian. After this, if the mosquito season is on, he advises preventive treatment, namely, the first and the second days 0.35 gm. and the third day 0.50 or 0.60 gm.

This whole procedure applied systematically and rigorously for several years has given results, he says, *littéralement miraculeux*, far superior to anything else known to date. That is, the radical cures have amounted to 98 per cent. By giving the quinin exactly from eight to seven hours before the attack, the largest quantity is absorbed just as the schizogony of the hematozoa reaches its highest point. Above the age of 17 the dosage is the same as for adults. For young infants he gives one eighth of the doses; from 1 to 2 years of age, one fourth; from 4 to 5, three eighths; from 6 to 9, one half; from 10 to 13, five eighths, and from 14 to 16, six eighths. In the exceptionally resistant cases he doubled the standard doses or took other exceptional means of quininization. Persons inoculated with infected anopheles and then given 0.40 gm. of quinin every day with 0.60 every third day, during the entire summer, never developed any symptoms of malaria. On the other hand, the same mosquitoes biting ten other persons who took afterward 1 gm. quinin for seven days, gave rise to malaria in 33 per cent. of the subjects, the ague developing in two or three weeks, with the praecox in the blood. The quinin used was the 0.2 gm. tablets supplied by the state.

Medical Journal of Siamese Red Cross, Bangkok

August, 1918, **1**, No. 2

*Case of Cesarean Section. H. S. Bholaraksha.—p. 66.
Sporadic Cases of Diphtheria at Bangkok. L. Robert.—p. 71.
*Alternating Amebic Appendicitis and Hepatitis. L. Robert and H. Sakda.—p. 79.

Cesarean Section.—The case described is the first known instance of cesarean section on a living woman performed in Siam.

Amebic Hepatitis and Appendicitis.—Robert and Sakda report the case of a medical army officer who developed dysentery apparently cured by emetin. Three years later, symptoms of appendicitis developed, but soon subsided as symptoms of hepatitis became manifest. Puncture of the liver showed amebas and colon bacilli in the pus. Amebas were then found in the stools. As the hepatitis subsided after clearing out the pus pocket, the appendicitis flared up again, and amebas and colon bacilli were found in the appendicitic pus. After this was cleared out complete clinical recovery followed. The ameba alone does not seem able to set up appendicitis, but it prepares the soil for the colon bacillus to start suppuration. The characteristic *balancement* between the liver and the intestinal lesions was marked in this case.

Nederlandsch Tijdschrift v. Geneesk., Amsterdam

Nov. 30, 1918, **2**. No. 22

Reform in Medical Education. G. van Rijnberk.—p. 1731.
Nephritis in Children. Schippers and de Lange.—p. 1733. Cont'n.
*Congenital Pigmentation of Cornea. P. J. Waardenburg.—p. 1741.
*Urticaria and Thyroid Functioning. H. Bolten.—p. 1747.

Congenital Pigmentation of the Cornea.—Waardenburg reports several cases of melanosis of the cornea. He is inclined to regard the pigmentation as merely a displacement of pigment, not an actual melanosis. No instance is known of cancer developing in an eye thus affected. He saw no evidences of a familial or hereditary character of the anomaly, and it did not seem to interfere with vision. The symmetrical pigmentation in one or both eyes was in the form of dark brown stripes, horizontal or vertical, or a stippled area. The iris was grey or brown.

Urticaria as Sign of Thyroid Deficiency.—Bolten describes four cases which apparently sustain his assumption that urticaria in some cases is due to thyroid insufficiency, inducing hypotony of the vegetative nervous system. One woman of 28 with signs of defective thyroid functioning developed transient urticaria after much muscular exertion, and also after emotional stress and during menstruation. In a girl of 19 similar trophic vasomotor phenomena were accompanied by symptoms of beginning epilepsy. After a brief course of thyroid treatment, there seemed to be no further tendency to urticaria. A woman of 30 had had slight exophthalmic goiter eight years before, and since then had developed transient urticaria whenever she was much fatigued or jealous. It used to last several days, but now she takes a tablet of thyroid extract when the urticaria appears, and it subsides at once. In a fourth case the symptoms indicate a high degree of vagotony. After fatigue or emotional stress, urticaria develops and sometimes a fleeting edema of the lips and eyelids.

He thinks that the term vagotony is too restricted; the irritability and weakness involve the whole of the sympathetic system, not the vagus alone. Urticaria sometimes accompanies various chronic conditions such as blood and liver disease, diabetes, tuberculosis, etc., in which the vegetative nervous system and the thyroid evidently have been damaged by the chronic ailment. For these and other reasons cited, he reiterates that urticaria is presumably a manifestation of hypotony of the vegetative nervous system, either congenital or the result of acquired thyroid insufficiency. The urticaria following the use of certain drugs, foods, etc., is explained by the same mechanism. The benefit from thyroid treatment is the most convincing support of this assumption in regard to urticaria—cutaneous asthma.

Hygiea, Stockholm

Dec. 14, 1918, **80**, No. 23

Study of Morphology of Posterior Aspect of the Lower Jaw in Median Region. G. Backman.—p. 1345.

Ugeskrift for Læger, Copenhagen

Dec. 5, 1918, **80**, No. 49

Fatal Hemorrhage from Umbilical Cord. G. Jørgensen.—p. 1929.
Epistaxis with Influenza. O. Hamburger.—p. 1936.

Dec. 12, 1918, **80**, No. 50

*Conservative Treatment of Surgical Tuberculosis. R. Hertz.—p. 1967.
Case of Pulmonary Actinomycosis. A. M. Andersen.—p. 1975.
Influenza in Soldiers. T. Olsen.—p. 1980,
Necropsy Findings in Case of Uveo-Parotid Fever. S. Bang.—p. 1983.
Epidemic Scabies. O. Haslund.—p. 1985.

Conservative Treatment of Surgical Tuberculosis.—Hertz is in charge of a sea coast sanatorium for children in Denmark, and for the last five years he has been giving heliotherapy a very prominent place in the treatment of tuberculous processes in bones and joints. The sun baths are given for about six hours a day as the children recline or play or stroll about, unclothed, in the open air. For stormy weather there is a large hall like a greenhouse. In winter it can be warmed. The healthier children also play about or recline in their living rooms for several hours, unclothed, before the open windows. The reflection from the water of the bay enhances the effect of the sunlight. The children seem to bear low temperatures better when they are well tanned. At the Grimmenstein sanatorium near by, children of 4 years old and over bear it perfectly to lie unclothed in the open air at a temperatur of 6 Réamur (45½ F.) As there is so much strong wind at the sanatorium in his charge, he has a partial shelter for the children. He uses a quartz lamp for the weaklier children and has had good experiences with it. Rollier has reported from Leysin 79.3 per cent. cured of his spondylitis cases; 4.1 per cent. died. Hertz, with heliotherapy on the Danish sea coast, very nearly equalled this, with his 75 per cent. cured of 271 cases; 90 per cent. cured in 139 cases of coxitis; 97 per cent. cured of 74 cases of gonitis; 97 per cent. cured of 29 cases of spina ventosa; 92 per cent. in 50 cases of ostitis; 94 per cent. of 61 cases of mesenteric tuberculosis; 95 per cent. of 248 cases of adenitis, and 73 per cent. of the 11 cases of multiple bone and joint lesions. The cure has been permanent in a much larger number of cases, he asserts, than with the best surgical statistics, confirming Calot's dictum on surgical tuberculosis, *"Le bistouri, c'est l'ennemi."*

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STAPHYLOCOCCUS AUREUS PNEUMONIA

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In the standard textbooks the staphylococcus is usually noted among other micro-organisms as a possible etiologic agent in the production of bronchopneumonia. A detailed description of the clinical picture of the disease associated with the presence of this organism in the lung has thus far failed to come to our attention. This is no doubt due in part to the relative rarity of this infection as encountered in civil practice, and possibly to the lack of careful study of the bacteriology of acute respiratory affections until but recently. How rarely *Staphylococcus aureus* infection of the lung occurs and how grave the prognosis is may best be stated by noting that in a series of about 800 cases of pneumonia, drawn from all classes of the population of New York City, only thirteen cases were treated at the hospital of the Rockefeller Institute under the direction of Dr. Rufus Cole, in a period of five years from 1913 to 1918, and of these, ten patients died. Some of these cases of bronchopneumonia were apparently secondary to local infections elsewhere in the body. Two seemed to be due to a primary infection of a finger and the scalp. One followed a severe attack of measles; another complicated a Type IV pneumococcus pneumonia. In most instances, however, it was impossible to find any antecedent infection, and the lungs appeared to be involved primarily.

During the present epidemic of influenza at Camp Jackson, S. C., which began about September 15 and continued for practically one month, a very unusual opportunity was afforded to study this infection in the medical clinic, under the direction of Major W. W. Herrick, chief of the medical service. In this period about 8,100 patients, chiefly soldiers, were admitted to the base hospital with an acute febrile condition accompanied by inflammatory changes of the upper respiratory passages and diagnosed influenza. The majority of these men after from three to five days of fever made a rapid and uneventful convalescence, returning to duty within a week or ten days. On the other hand, approximately 1,400 either continued to have fever and prostration, or after an afebrile period of from three to seven days began to show clinical evidence of inflammatory change in the deeper air passages of the lungs, and the condition was diagnosed as *pneumonia*, either broncho or lobar in type. Many of these cases of pneumonia were relatively mild, only parts of one or two lobes being involved, usually the lower lobes and the dependent portions.

The examination of the sputum of these patients showed most frequently the presence of the pneumococcus, especially the strains designated as Type IV, less often *B. influenzae*, various types of streptococci, and various members of the gram-negative diplococcus group, usually *M. catarrhalis* or *M. flavus*. A certain number of cases, relatively few as compared with the total number of cases of pneumonia, but large when correlated with the total number of deaths, presented an entirely different picture. These patients were extremely prostrated almost from the onset of their infection. After being ill from three to four days with influenza, their condition became critical. They exhibited an unusual type of cyanosis. The cherry-red indigo-blue color was indeed very striking, though not pathognomonic of the infection to be described more fully, that associated with *Staphylococcus aureus*.

CLINICAL FEATURES OF THE DISEASE

The onset of *Staphylococcus aureus* pneumonia is almost always insidious and rarely accompanied by the chill and localized pain of a typical lobar pneumonia, though the course of the disease is extremely rapid. The facies, the anxious expression, and deep cyanosis suggest a grave prognosis from the onset, at a period when physical signs of pulmonary involvement are but scanty. Herpetic eruptions on the lips are scarcely ever noted, nor is delirium present except rarely. Usually the mind is clear almost to the end. Epistaxis is not uncommon. Occasionally pleuritic pain is complained of, but this is not usual. It is the picture of a general septicemia, so often seen in puerperal sepsis when the patient so little realizes the close proximity of death. Sweating is not a striking symptom of this type of infection, though near the end, the skin frequently becomes moist and later clammy. The fever on the whole is high, ranging between 104 and 106, with frequent remissions to 101. The pulse is relatively slow, at the onset under 100, and in only a few cases does it rise above 120 until just before death. The quality of the pulse, on the other hand, is usually poor, small, weak, and in many cases almost imperceptible. Respirations usually range between 24 and 36 and in some cases rise to 50 or 60 without much obvious discomfort. These patients rarely have the painful and labored breathing seen in pneumococcus infections.

Figure 1 illustrates the typical course of the disease in a patient who developed his infection in the hospital:

A white soldier, aged 22, and a native of Alabama, was admitted to the hospital, *Sept. 6, 1918*, about a week before the first cases of influenza began to appear in camp. He had

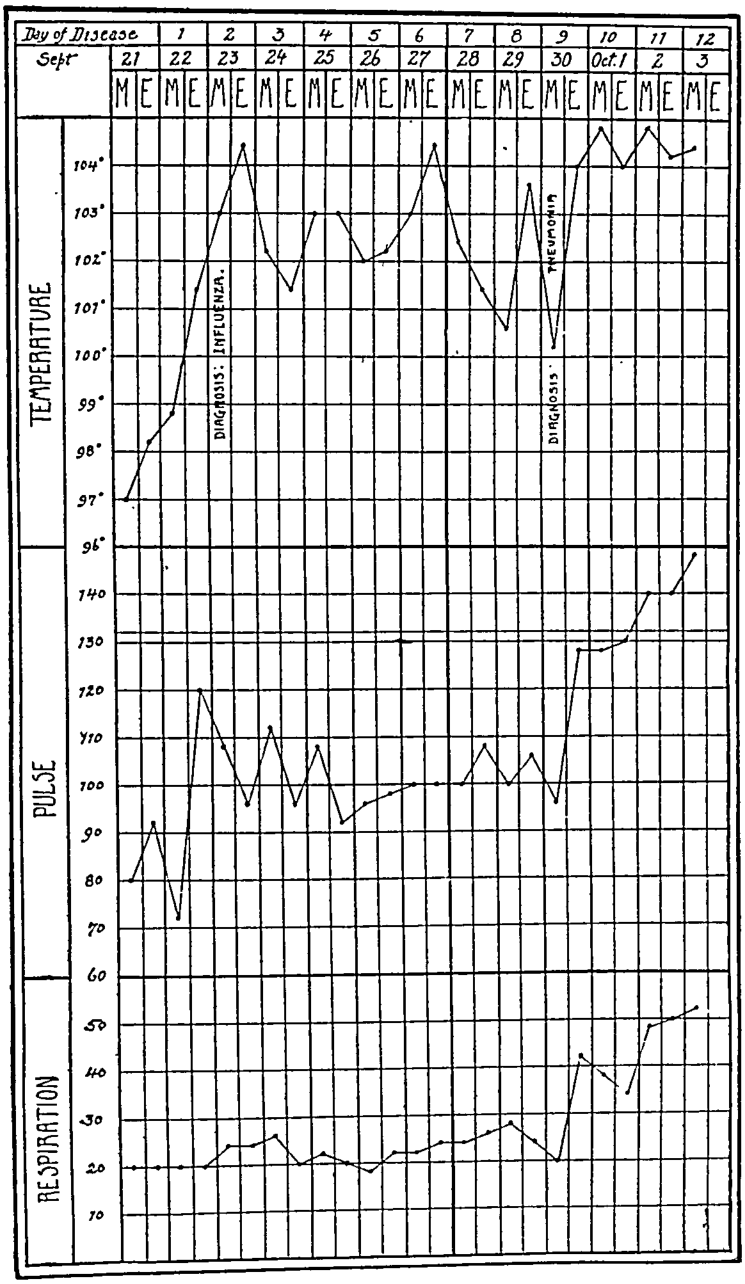

Fig. 1.—Temperature, pulse and respiration chart in a case of influenza and of bronchopneumonia of the right and left lower lobes that developed in a farmer from Alabama admitted to the hospital because of estivo-autumnal malaria. Blood count, October 3: white blood cells, 5,100; polymorphonuclears, 86 per cent.; lymphocytes, 13 per cent.; large mononuclears, 1 per cent.

a moderately severe estivo-autumnal malaria and a chronic hookworm infection. Under treatment with quinin he had had no fever since September 10, and apparently was convalescing nicely. Although in a ward in which there were no influenza patients, on the evening of September 22 he had fever and the following morning the symptoms of influenza. From that day on his temperature ranged between 101.4 and 104.4. His pulse and respirations were relatively slow until September 30, the ninth day of his illness, when signs of consolidation were noted over the right lower lobe of the lungs. From then on he rapidly became critically ill, having a pale color and a dark blue cyanosis, death following on the twelfth day of his disease.

Clinical examination of the chest of the average case reveals a very atypical type of pneumonic involvement. Signs of congestion of both lower lobes are found frequently, though in the majority of cases a diffuse process in all the lobes may be present. At the onset, only slightly diminished resonance to percussion may be elicited, with diminished breath sounds and many coarse and fine moist râles. Fluoroscopic examination of the chest at this time reveals little or nothing. But rarely are there signs of pure consolidation of one or more lobes, and then only late in the disease. Frequently there is an abundance of coarse moist râles heard throughout the chest. Rarely are pleural friction sounds elicited. In a very few cases a pleuropericardial rub may be heard. In one instance Major Herrick detected a true pericardial friction, on which sign, together with the roentgenographic evidence, the diagnosis of pericarditis was made, which was confirmed by the necropsy (Fig. 2).

Staphylococcus aureus pneumonia usually pursues a rapid course. Of the patients studied at Camp Jackson, twelve died between the first and fifth day, and seventy-three between the sixth and tenth day of the disease. In Table 1 the onset of the pneumonia was calculated from the onset of the first symptoms of influenza. It will be seen that the average length of the disease was not as long as that of ordinary primary lobar pneumonia. This fulminating character of the infection was likewise noted in the cases studied several years ago in New York.

TABLE 1.—THE DURATION OF STAPHYLOCOCCUS AUREUS PNEUMONIA

Day of the Disease on Which Death Occurred	No. Cases	Per Cent.
1- 5	12	7.8
6-10	73	47.7
11-15	41	26.7
16-20	15	9.8
21-25	7	4.5
26-30	2	1.3
31-35	1	0.6
36-40	2	1.3

LABORATORY FINDINGS OF THE DISEASE

The most characteristic feature of this type of pneumonia is the sputum. When typical, the sputum is friable, purulent material of a dirty salmon-pink resembling anchovy sauce or the contents of an overripe furuncle. Occasionally the sputum is hemorrhagic, at first suggesting an acute pulmonary hemorrhage; but on close inspection its purulent character can be distinguished. If smears of such sputum are made and stained according to Gram's method, one sees field after field of gram-positive group cocci and pus cells.

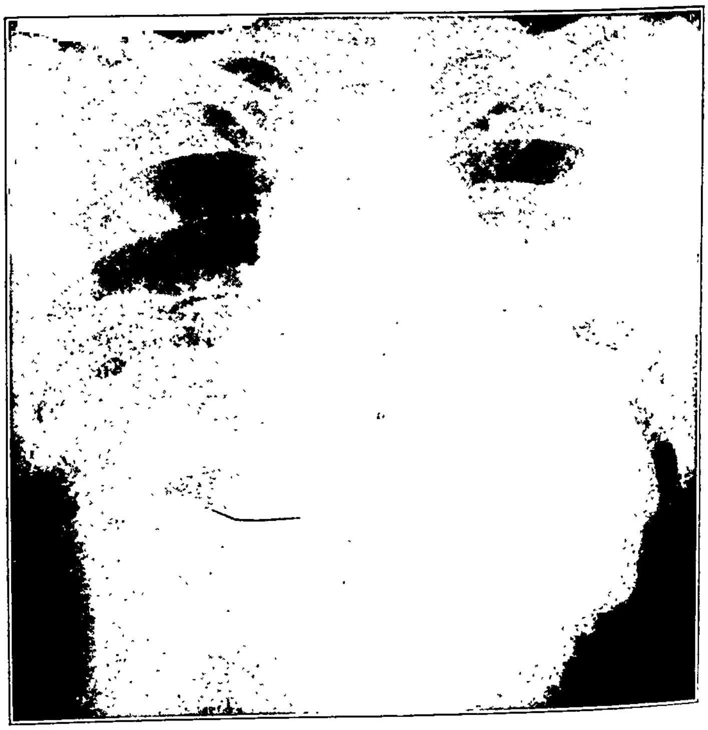

Fig. 2.—Diffuse bronchopneumonia and fibrinopurulent pericarditis; pure Staphylococcus aureus infection.

One can almost give a fatal prognosis when sputum as described above is obtained. Typical sputum, however, cannot always be procured; and frequently cases that ultimately result fatally produce only greenish yellow purulent material which on culture yields the staphylococcus as the predominant organism.

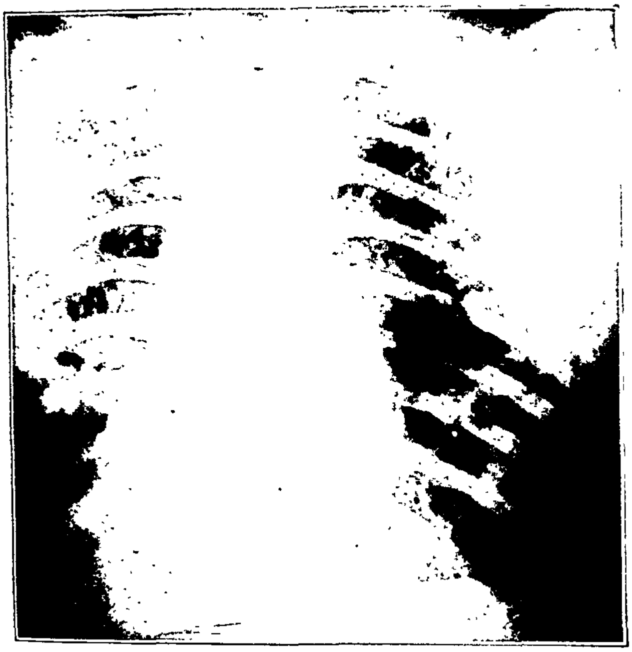

Fig. 3.—Diffuse bronchopneumonia; Staphylococcus aureus and hemolytic streptococcus recovered from the lung.

If sputum containing the staphylococcus is streaked on glucose-free blood agar plates, the colonies appear as opaque, round, shiny disks about 1 mm. in diameter surrounded by a wide zone of hemolysis after eighteen hours' incubation. On removal from the incubator, the colonies may appear white; but if the plates are allowed to remain a few hours in the day or sunlight, the yellow pigment appears.

In the routine examination of hundreds of specimens of sputum, *Staphylococcus aureus* is encountered frequently both from the throats of normal individuals and from those having a definite pneumococcus infection, but not usually as the predominating organism. It is impossible to say what proportion of those having pneumonic lesions and showing *Staphylococcus aureus* in the sputum are harboring the organisms in the alveoli of the lungs. A considerable number of individuals presenting these findings have recovered, but it is doubtful that many of them actually had a staphylococcus infection of the lungs when one considers the pathology of the disease. In many cases, in addition to the predominating *Staphylococcus aureus* in the sputum there were recovered various types of pneumococcus, *B. influenzae*, streptococcus and other organisms. The presence of these bacteria in association with the staphylococcus in the lung was confirmed in many instances in the postmortem examinations.

BLOOD CULTURES

During the height of the epidemic it was possible to make relatively few blood cultures, many of the laboratory staff themselves being ill, and technical difficulties with the culture medium made the possibility of obtaining bacterial growth uncertain. Two cases were reported as having positive cultures. At the Hospital of the Rockefeller Institute, positive blood cultures were obtained in 53 per cent. of the cases of *Staphylococcus aureus* infection. Consequently it is evident that a bacteremia occurs with much greater frequency than with the hemolytic streptococcus infections of the lung, in which it is quite unusual to be able to demonstrate a bacteremia except just before death and then rarely. Only one patient having a positive culture has recovered, to our knowledge, so that the presence of a bacteremia is of very grave import.

PLEURAL FLUIDS

Few cases showed clinical evidence of accumulation of fluid in the chest or pericardium. When present, the fluid was slightly cloudy amber in color, sometimes with a tinge of blood, when discovered early in the disease. If later, frankly greenish-yellow pus may be obtained. Direct smears of the fluid stained by Gram's method show many pus cells and gram-positive group cocci. Many of the bacteria may be seen phagocyted. Cultures of the fluid on plain or blood agar show the typical colony of *Staphylococcus aureus.* The culture plates should be incubated for seventy-two hours before discarding, for frequently when present, the small, colorless, dewdrop-like colonies of *B. influenzae,* which are prone to develop as satellites about the large staphylococcus colony, may escape notice after eighteen hours' incubation, when they are only pinpoint in size and are seen only with a hand lens.

If, by chance, the chest is explored and no fluid is obtained, the needle penetrating solid or semiconsolidated lung tissue, the needle may be washed out by aspirating a little plain bouillon broth culture medium into the syringe and cultures made with the blood-tinged fluid. One can frequently recover *Staphylococcus aureus* in this manner, if it is present.

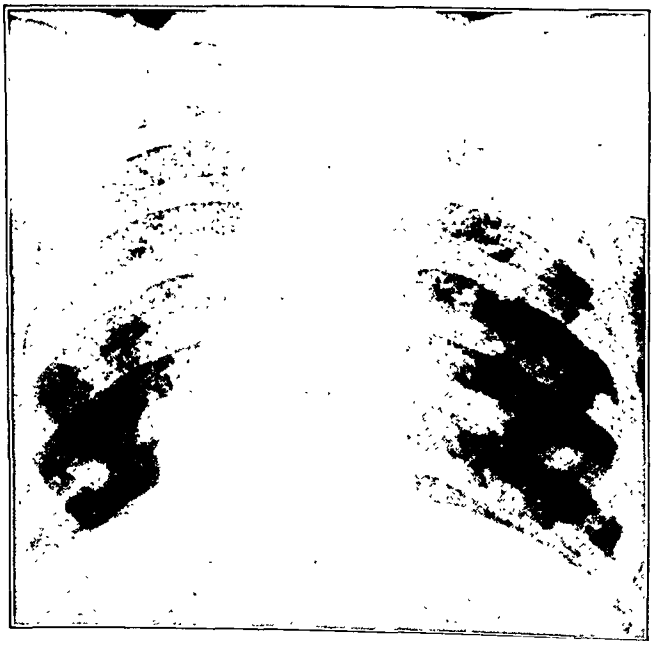

Fig. 4.—Diffuse bronchopneumonia; Staphylococcus aureus and B. influenzae recovered from the lung.

BLOOD EXAMINATIONS

Under the direction of Major M. A. Barber, chief of the laboratory of the base hospital, leukocyte determinations were made of a considerable number of cases of *Staphylococcus aureus* pneumonia.

Table 2 shows the white blood cell estimations of cases grouped according to the results obtained from the postmortem cultures. It is obvious that the majority of the figures are quite unlike those obtained in ordinary lobar pneumonia. Both the patients dying of pure *Staphylococcus aureus* infection and those having a mixed infection with *B. influenzae,* pneumococcus or hemolytic streptococcus, show in many instances a leukopenia. The majority are about normal; a few show a moderate leukocytosis. Many of those having an increased number of white blood cells had localized complications, as empyema or pericarditis, as noted in the table.

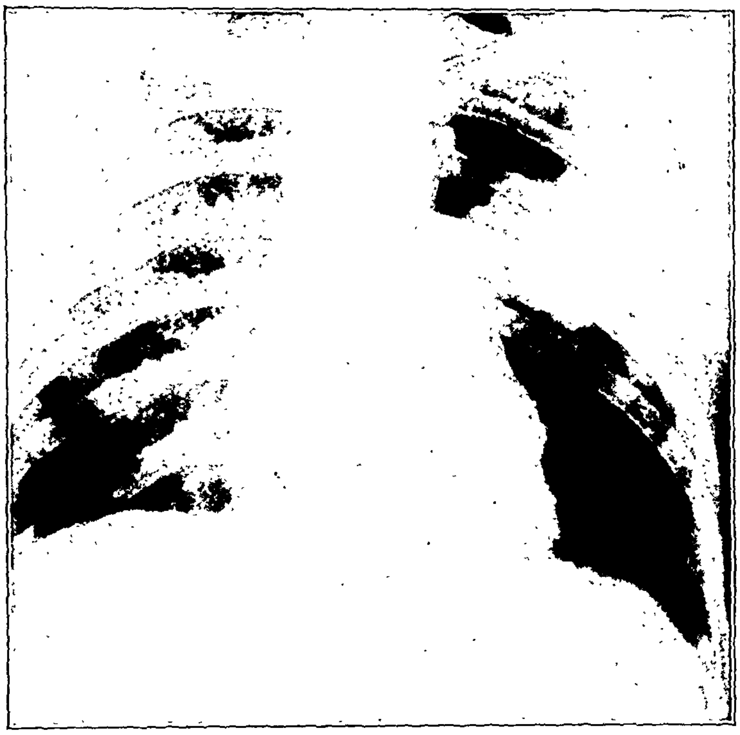

Fig. 5.—Diffuse and confluent bronchopneumonia with abscess formation; Staphylococcus aureus and pneumococcus Type IV recovered from the lung.

TABLE 2.—BLOOD EXAMINATIONS

Staphylococcus Aureus: Number of Leukocytes		Polymorphonuclears, per Cent.
2,800		46
2,900		57
3,100		53
3,100		84
3,900		52
4,100		80
4,300		84
4,400		86
4,500		66
4,800		59
5,000		75
5,000		67
5,100		86
5,500		53
28,600	Pericarditis	83
6,300		76
6,900		84
11,000		94
7,000		81
8,000		72
8,400		74
9,200		76
9,600		87
10,300		83
10,400		85
11,000		76
11,400		93
13,400		86
15,600		90
21,000	Recovered	84
24,000		83
28,400		89
28,600	Pericarditis	90
35,500	Empyema	86
54,000	Pericarditis	95

Number of Leukocytes		Polymorphonuclears, per Cent.
S. Aureus and B. Influenzae		
4,400		65
4,400		83
6,700		87
8,000		76
8,000		76
8,500		70
27,300		89
31,800		82
S. Aureus and Pneumococcus Type I		
5,600		62
S. Aureus and Pneumococcus Type II		
3,300		77
6,700		86
13,000		78
S. Aureus and Pneumococcus Type III		
5,500		64
12,900		93
S. Aureus and Pneumococcus Type IV		
4,800		84
7,700		77
9,600		69
10,100		58
11,600		92
12,900		69
38,000	Meningitis	90
S. Aureus and Nonhemolytic Streptococcus		
4,000		75
5,600		69
8,500		89

It is possible that the cause of the primary epidemic infection, whatever it may be, depresses the hematopoietic system to such a degree that it is unable to react normally to infection by bacteria, which is usually accompanied by a leukocytosis. This, in turn, may offer an explanation for the production of pathologic lesions in the lungs by the bacteria that are commonly found in the nose and throat of healthy individuals and which are to be considered as secondary invaders.

The examination of the urine has shown nothing characteristic of *Staphylococcus aureus* infection, though no special investigation was made of the urine in these cases. A trace of albumin and a few granular casts are frequently seen, as in most acute febrile conditions. Apparently the disease is of so brief a duration that the formation of abscesses in the kidneys rarely takes place.

ROENTGEN EXAMINATIONS[1]

Brief mention has been made of the lack of definite localized shadows in the lungs on fluoroscopic examination early in the disease. Figures 3 and 4 are illustrative of the diffuse involvement of the lungs as shown by roentgenograms. In many instances the diffuse mottling of the whole lung suggests the lesion associated with miliary tuberculosis. In other instances, as in Figures 5 and 6, small multiple areas of consolidation can be demonstrated. Occasionally whole lobes are involved, there being a confluent bronchopneumonia present or a pneumococcus lobar type of lesion with a *Staphylococcus aureus* infection superimposed. The roentgen ray has been of great value as an aid in the diagnosis of the chest complications of this disease, namely, empyema and pericarditis (Figs. 2 and 7).

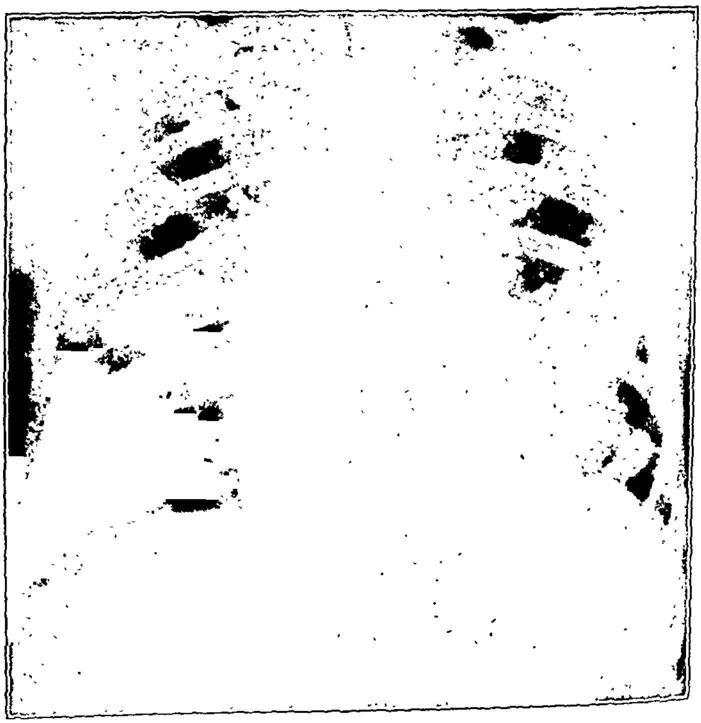

Fig. 6.—Diffuse and confluent bronchopneumonia; Staphylococcus aureus and B. influenzae recovered from the lung.

COMPLICATIONS

In this series of cases the complications have been relatively rare. This has been due largely to the high immediate mortality, the disease running a brief course, death intervening in about ten days and in some cases as early as the fifth day. Only three patients have had discoverable empyema. One of these patients, who had a bacteremia early in the course of the disease, died on the ninth day with a diffuse process in the lungs and a left suppurative pleuritis. The second patient, in addition to a double empyema, had suppurative pericarditis and a bilateral otitis media, and died on the thirty-second day of the disease. The third case was quite unusual, and the patient is convalescing nicely. A large pocket of pus developed in the right chest in the angle between the mediastinum and the diaphragm (Fig. 7). This abscess was drained by resecting a portion of the fifth rib in the anterior axillary line.

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[1] The roentgen examinations, plates, and photographs were made under the direction of Lieut. G. A. Finney, M. C., U. S. Army, of Kansas, *in charge* of the roentgen laboratory, base hospital, Camp Jackson, S. C.

Fig. 7.—Localized suppurative pleuritis; pure culture of Staphylococcus aureus obtained from pus.

Other complications have been few in number. Seven patients had acute otitis media. One patient had a staphylococcus meningitis. Nine patients had signs of meningeal irritation, but examination of the spinal fluids proved them to be normal. One patient developed a *Staphylococcus aureus* pericarditis. The pericardium, both parietal and visceral layers, were covered with a thick, shaggy coat of fibrin. A small amount of purulent fluid was found in the pericardial sac (Fig. 2).

Subcutaneous emphysema, a complication rarely seen in primary lobar pneumonia, was encountered six times in the total series of about 1,400 cases of pneumonia. In two of these cases *Staphylococcus aureus* was isolated from the lung. The emphysema has been very extensive, involving the head, neck and trunk. In one case the eyelids were completely closed. It apparently embarrassed the respirations but little.

One patient had a complicating suppurative parotitis from which the staphylococcus was cultivated. Several patients had multiple furuncles.

PATHOLOGY

Of the necropsy examinations made during this epidemic by Capts. Paul Wegeforth and W. H. Norton, in fourteen cases it has been possible to cultivate *Staphylococcus aureus* directly from the lung tissue, either as the sole organism or in association with other micro-organisms, as shown in Table 3.

From this material an unusual opportunity has been presented to study the lesions associated with the presence of *Staphylococcus aureus* in the lung tissue. The lungs on gross inspection are not usually so voluminous as those seen in the hemolytic streptococcus infections, nor do they have the same shotty feeling on palpation. Usually the dependent portions of the lungs, the lower lobes or very frequently the posterior portions of all the lobes being the dependent parts with the body in the horizontal position, are involved.

TABLE 3.—LUNG CULTURES IN FOURTEEN CASES

	No. of Cases
Staphylococcus aureus	7
Staphylococcus aureus and B. influenzae	1
Staphylococcus aureus and pneumococcus Type I	1
Staphylococcus aureus and pneumococcus Type II	1
Staphylococcus aureus and pneumococcus Type III	1
Staphylococcus aureus and pneumococcus Type IV	2
Staphylococcus aureus and Streptococcus hemolyticus	1

There may or may not be any pleural exudate. A fibrinous exudate is much less commonly found than in lobar pneumonia. The surface of the affected portions of the lung is deep purplish blue. If one examines the pleura carefully, one can usually see, in addition to showers of petechiae, small yellowish white spots, pinhead in size, situated just beneath the pleura, which prove to be minute abscesses. The cut surface of the lung may be intensely hemorrhagic, resembling the cut surface of the spleen if the course of the disease has been of brief duration, or it may have the appearance of a confluent bronchopneumonia. One does not see, however, small bronchioles standing up above the cut surface and surrounded by a zone of dark red infiltrated tissue as in the bronchopneumonias following measles, which is the lesion most frequently associated with the hemolytic streptococcus. On the contrary, one usually finds innumerable small ab

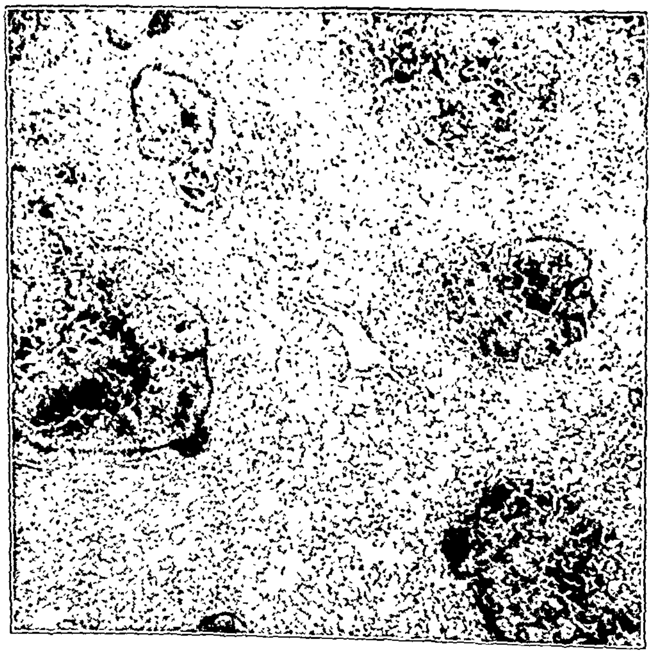

Fig. 8.—Section of lung tissue, ×13, showing abscesses; case from Hospital of the Rockefeller Institute. The photomicrographs were prepared under the direction of Mr. Louis Schmidt, Department of Illustration, Rockefeller Institute for Medical Research, New York.

ranging in size from 1 to 10 mm. in diameter. If the process is a very early one, these minute white spots may not be even broken down. If they are of longer duration, many small abscesses may have become confluent, having softened and become filled with thick, greenish yellow pus. Nine of the fourteen cases examined postmortem revealed these small abscesses. Of the cases not showing abscess formation, three were very early, the patients dying on the fourth, sixth and seventh days from the onset of the primary epidemic infection. The sections of these cases showed intense red cell congestion with rupture of the alveolar walls and exudation of serum and red cells into the alveoli. Another case, in which the patient died on the eleventh day without abscess formation, was complicated by suppurative pericarditis (Fig. 2). In the last case there was a mixed infection with *B. influenzae,* in which process *Staphylococcus aureus* apparently played a minor rôle. Direct smears of the abscesses show pus cells and many gram-positive group cocci. The majority of the abscesses tend to be situated at the periphery of the lung near the pleura, though the whole lung may be involved. The propensity of *Staphylococcus aureus* to form multiple small abscesses in the lung appears to be characteristic of this organism, for the type of lesion shown in Figures 8 and 9 from the case treated at the Hospital of the Rockefeller Institute in 1915 is similar to that illustrated in Figure 10. In the institute case there was no history of any antecedent infection.

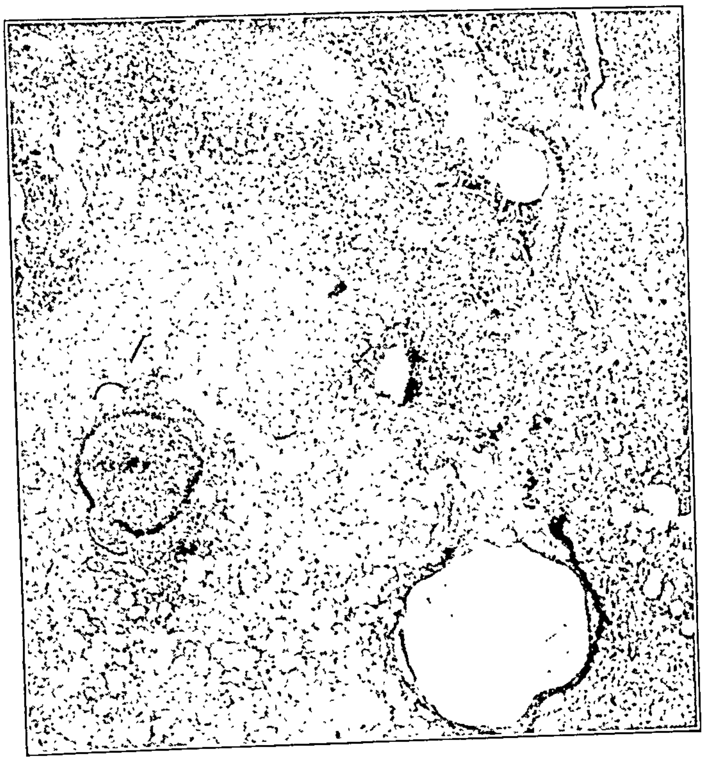

Fig. 9.—Section of lung tissue, ×13, showing abscesses; case from Hospital of the Rockefeller Institute.

Figures 8, 9 and 10 show the circumscribed abscesses found scattered through congested lung tissue. There is at first marked engorgement of the alveolar walls with exudation into the alveoli of serum, a small amount of fibrin, and leukocytes and plasma cells containing blood pigment. There is apparently a very rapid coalescence of alveoli with the resultant formation of small, circumscribed abscesses filled with degenerated pus cells and bacteria (Figs. 10 and 11). In some instances there is an attempt to limit the process by the formation of new connective tissue. In other instances there is so rapid a solution of tissue that this reaction is scarcely evident. Figure 12 shows the lesion rapidly extending out into unaffected alveolar tissue.

Lord,[2] in describing the pathology of the bronchopneumonia following influenza, states that not infrequently small abscesses in the lungs have been found, but no mention has been made of the presence of *Staphylococcus aureus.* In our experience it seems probable that while not every case having a *Staphylococcus aureus* secondary infection in the lung may show abscess formation, the occurrence of innumerable small abscesses of the lung predicates that microorganism, excepting, of course, multiple tuberculous abscesses of the lung, which even grossly present a different pathologic picture.

Three necropsies revealed the presence of a suppurative pleuritis. In one case the pus was localized in the lower part of the left pleural cavity. In another there were collections of pus in both pleural cavities. One of the pockets, situated in the upper part of the left anterior chest, communicated with the pericardial cavity. The latter was the seat of a fibrinopurulent pericarditis.

In this series there were four cases of pericarditis. In one the necropsy disclosed no evidence of infection of the pleural cavities. The heart was covered with a thick layer of shaggy fibrinous material. An acute vegetative endocarditis of the mitral valves was demonstrated in one instance.

Suppuration of the left parotid gland occurred once. In no case did necropsy reveal any abscesses of the kidney, lesions which are frequently seen in *Staphylococcus aureus* pyemia. One abscess in the spleen was discovered.

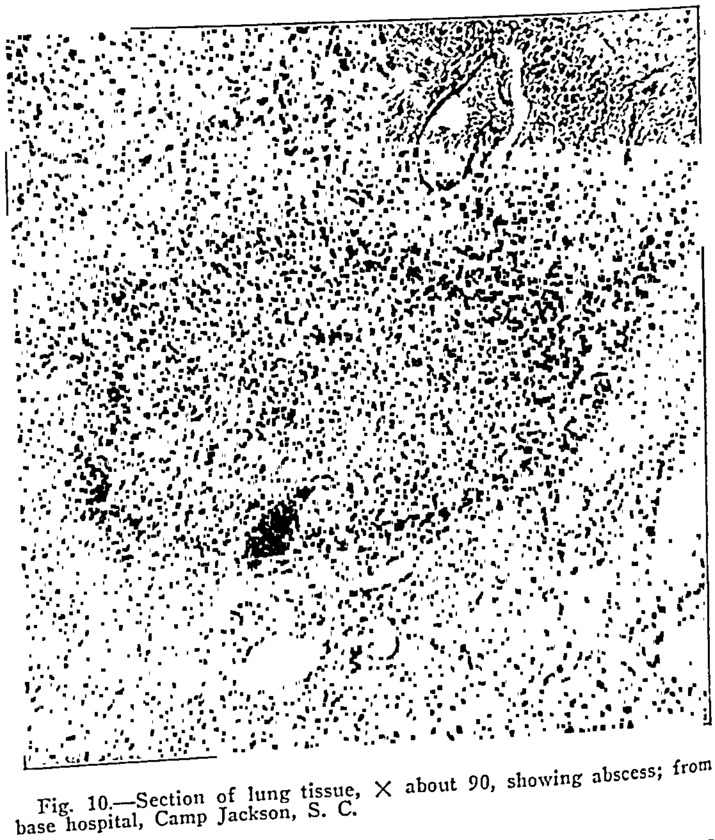

Fig. 10.—Section of lung tissue, × about 90, showing abscess; from base hospital, Camp Jackson, S. C.

A postmortem examination of one of the two cases presenting signs of subcutaneous emphysema was made. It was impossible to discover the pathway of the escape of air from the lungs. The mediastinal tissue was filled with bubbles of air. Along the lappet of the inferior edge of the right upper lobe, the visceral pleura was distended with large bubbles of air varying in size from 1 to 10 mm. in diameter.

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[2] Lord, in Osler: System of Medicine.

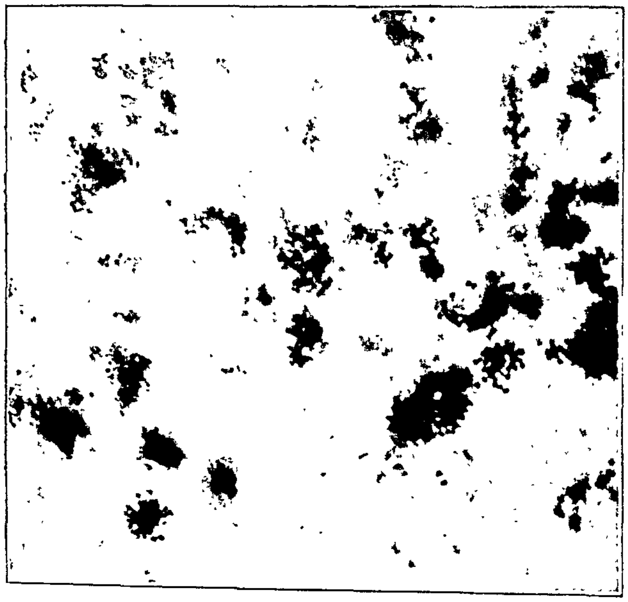

Fig. 11.—Section through a miliary abscess, ×1,000, stained for bacteria, showing group cocci, morphologically staphylococci.

The multiple foci of infection especially numerous in the periphery of the lung, together with the occasional occurrence of metastatic abscesses in other parts of the body, suggest that the condition is disseminated by the blood stream. The absence of abscesses in the liver and kidneys, however, does not support this theory. It is possible that the nonproductive, harassing cough that frequently accompanies the early stage of this epidemic infection was responsible for the dispersion of micro-organisms from the nose and throat into the deeper respiratory passages.

TABLE 4.—SUMMARY OF POSTMORTEM LUNG CULTURES

	Number
Staphylococcus aureus	92
Staphylococcus aureus	5
Staphylococcus aureus	4
Staphylococcus aureus ... Type III....................	16
Staphylococcus aureus and pneumococcus Type IV................	17
Staphylococcus aureus	3
Staphylococcus aureus	5
Staphylococcus aureus	2
Staphylococcus aureus ... Streptococcus viridans.................	1
Staphylococcus aureus and M. flavus........................	1
Staphylococcus aureus and diphtheroid bacillus..................	1
Staphylococcus aureus and B. coli...........................	1
Staphylococcus aureus, B. influenzae and pneumococcus Type II....	1
Staphylococcus aureus, B. influenzae and pneumococcus Type III...	1
Staphylococcus aureus, B. influenzae and pneumococcus Type IV...	1
Staphylococcus aureus, pneumococcus Type III and B. coli.........	1
Staphylococcus aureus, B. influenzae and *Streptococcus hemolyticus*......................	1
Staphylococcus aureus, B. influenzae and Streptococcus viridans...	1
Pneumococcus Type I..................................	6
Pneumococcus Type II.................................	16
Pneumococcus Type III................................	29
Pneumococcus Type IV.................................	41
Pneumococcus Type I and Streptococcus hemolyticus..............	1
Pneumococcus Type I and B. influenzae......................	1
Pneumococcus Type II and P	1
Pneumococcus Type III and	3
Pneumococcus Type IV and	7
Pneumococcus Type IV and	2
Pneumococcus Type IV and M. flavus..........................	1
Pneumococcus, type undetermined	1
B.	2
B.	19
B.	2
B.	2
Str	1
Str ...coccus group.....	6
	1
	7
	2
	1
...coccus, Strain 10..............	1
A gram-negative diplococcus, culturally meningococcus............	1
Hemorrhagic septicemia bacillus group..........................	1
Acute and chronic disseminated tuberculosis.......................	1
Total number of cases cultivated...........................	312
Staphylococcus aureus, alone or associated with other organisms..	153

POSTMORTEM CULTURES

On account of the crowded condition of the morgue, it became impossible to hold many postmortem examinations. Consequently an attempt was made to learn more of the bacterial infection of the lungs of the fatal cases by exploring the lungs postmortem with an ordinary chest exploring needle and syringe. The syringes and needles were sterilized by boiling and the skin by the application of tincture of iodin. The needle was thrust into the lung tissue and aspiration continued until about 1 c.c. of bloody fluid was obtained. This fluid was then cultivated on glucose-free blood agar plates and slants and in plain broth, and in many cases direct smears of the lung juice were made. These smears checked closely with the cultures. Table 4 details the results of these postmortem cultures. The organisms recovered in this way were found as well in the sputa, blood cultures, and empyema fluids. The number of mixed infections of the lung is surprising. But Cole and MacCallum,[3] in a study of the bacteriology of cases of bronchopneumonia following measles last winter at San Antonio, Texas, obtained similar results.

The occurrence of *Staphylococcus aureus* in the lungs in the fatal cases is quite striking, 49 per cent. of the 312 cases cultivated showing this organism present either alone, ninety-two cases, or in association with the influenza bacillus, twenty-two cases, the pneumococcus, twenty-nine cases, or various streptococci, twelve cases. In many instances, death was early predicted from the appearance of the sputum alone, and the postmortem cultures verified the information obtained from the sputum examination.

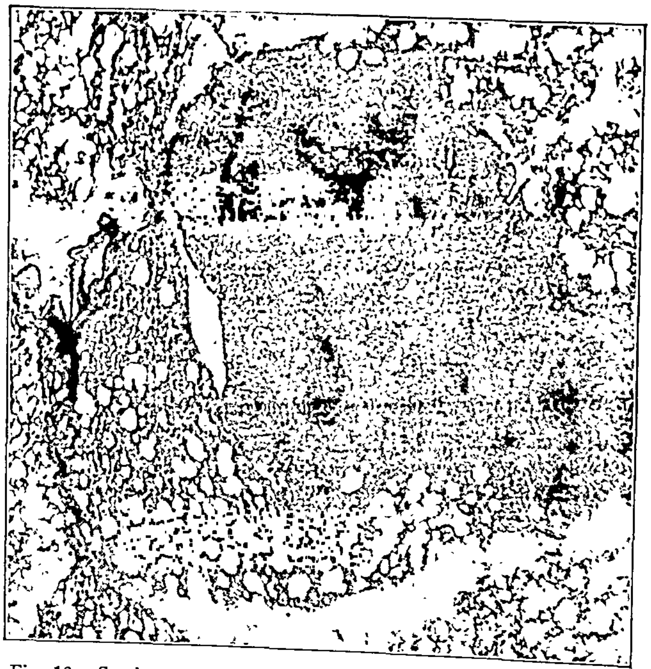

Fig. 12.—Section of lung tissue, showing a type of rapidly spreading lesion.

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[3] Cole, R., and MacCallum, W. G.: Pneumonia at a Base Hospital, J. A. M. A. 70: 1146 (April 20) 1918.

The ninety-four cases showing the pneumococcus alone in the lungs were clinically more like typical lobar pneumonia, often showing extensive consolidation and pure bronchial breathing.

It is to be remarked that the organism found so frequently last winter associated with the bronchopneumonia following the epidemic of measles in the Army camps, the hemolytic streptococcus, was rarely encountered either in the sputum or in material from the lung.

On several of the plates, colonies of bacteria conforming to the characteristics of the meningococcus were found. Unfortunately, in only one case did these colonies grow on subcultures, and in this instance the organism agglutinated with Strain 10 meningococcus antiserum furnished by the Rockefeller Institute. This patient died without exhibiting any symptoms of meningitis that could be detected clinically. The presence of these organisms in the lungs, and the occurrence of several cases of meningococcus meningitis complications in this series of cases, opens up a new aspect to the ever increasing knowledge of the activities of the meningococcus in the human body.

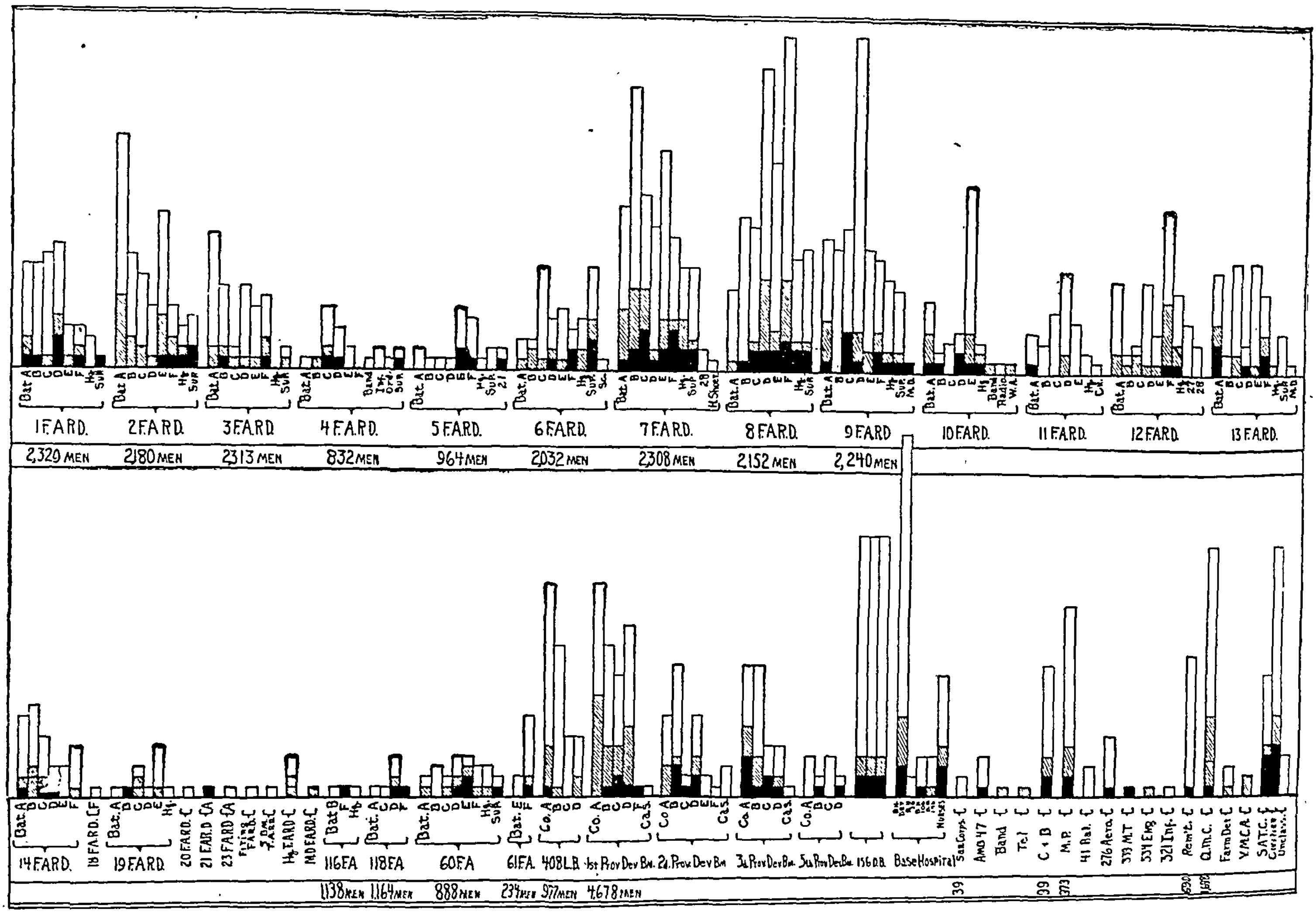

Fig. 13.—Incidence of pneumonia in military organizations at Camp Jackson, *Sept. 15 to Nov. 1, 1918; outline, total cases of pneumonia;* one square represents one case; black, Staphylococcus aureus deaths; shaded, deaths associated with other organisms.

In two cases, organisms conforming culturally and morphologically to bacilli of the hemorrhagic septicemia group were encountered. The colonies were moist and grew readily on blood agar. They appeared as gram-negative oval coccobacilli frequently showing bipolar staining. Some of the slides were examined by Major M. A. Barber, who has had a field experience with the bacillus of plague, and he observed the close morphologic similarity of these organisms to the plague bacillus. Once before this organism was encountered in a fulminating case of bronchopneumonia treated at the Rockefeller Institute Hospital. Here again, it was found associated with *Staphylococcus aureus.*

EPIDEMIOLOGY

Pneumonia associated with *Staphylococcus aureus* occurred in almost every organization at Camp Jackson (Fig. 13). In general, where the total incidence of pneumonia was high there was a correspondingly larger number of *Staphylococcus aureus* infections.

In the First, Second and Third regiments, Field Artillery Replacement Depot, with a total strength of 6,820 men, there developed 178 cases of pneumonia, in which fourteen were found to be harboring *Staphylococcus aureus* in the lung, a percentage incidence of 7.8. In the Seventh, Eighth and Ninth regiments, F. A. D. R., organizations having a smaller quota, 6,700 men, there were 380 cases of pneumonia, in forty-three, or 11.3 per cent., of which, staphylococci were harbored in the lung.

In the base hospital organizations there occurred fifty-eight cases of pneumonia, of which seven, or 12 per cent., were associated with *Staphylococcus aureus.*

The higher incidence of pneumonia in the Seventh, Eighth and Ninth regiments may possibly be explained by the fact that these regiments were composed of men who were recent arrivals in camp and in the midst of their period of intensive training.

Last winter in the mortality statistics of the postmeasles bronchopneumonias in the Army, which were largely due to the hemolytic streptococcus, certain Southern states suffered in comparison with the Northern states.

In this camp the incidence of the virulent *Staphylococcus aureus* pneumonia was greater among the men from New York and Ohio, 15 and 18.5 per cent., respectively, than among the men from Florida, 12.5 per cent., North Carolina, 9 per cent., and South Carolina, 12 per cent. Here again the men from Ohio and New York were among the more recent arrivals.

South Carolina furnished ten *Staphylococcus aureus* pneumonias, or 7.1 per cent. of the 139 pneumonias among the negroes. These men were from one regiment of the F. A. R. D. and from labor battalions, and had been in camp for some time.

caffein and whisky were also used. Hypodermoclysis or infusions of physiologic sodium chlorid solution were administered in the event of the patient's not being able to take fluids by mouth. In a few cases, infusions of 25 per cent. glucose in physiologic sodium chlorid solution, in 250 c.c. amounts, were given once or twice a day. Practically no amelioration of the patient's condition followed the use of these therapeutic measures.

In the treatment of the complications, the one patient having a localized suppurative pleurisy was drained by a thoracotomy and costectomy and the Carrel-Dakin after-treatment instituted with excellent results. The other two patients died with complicating pericarditis and endocarditis.

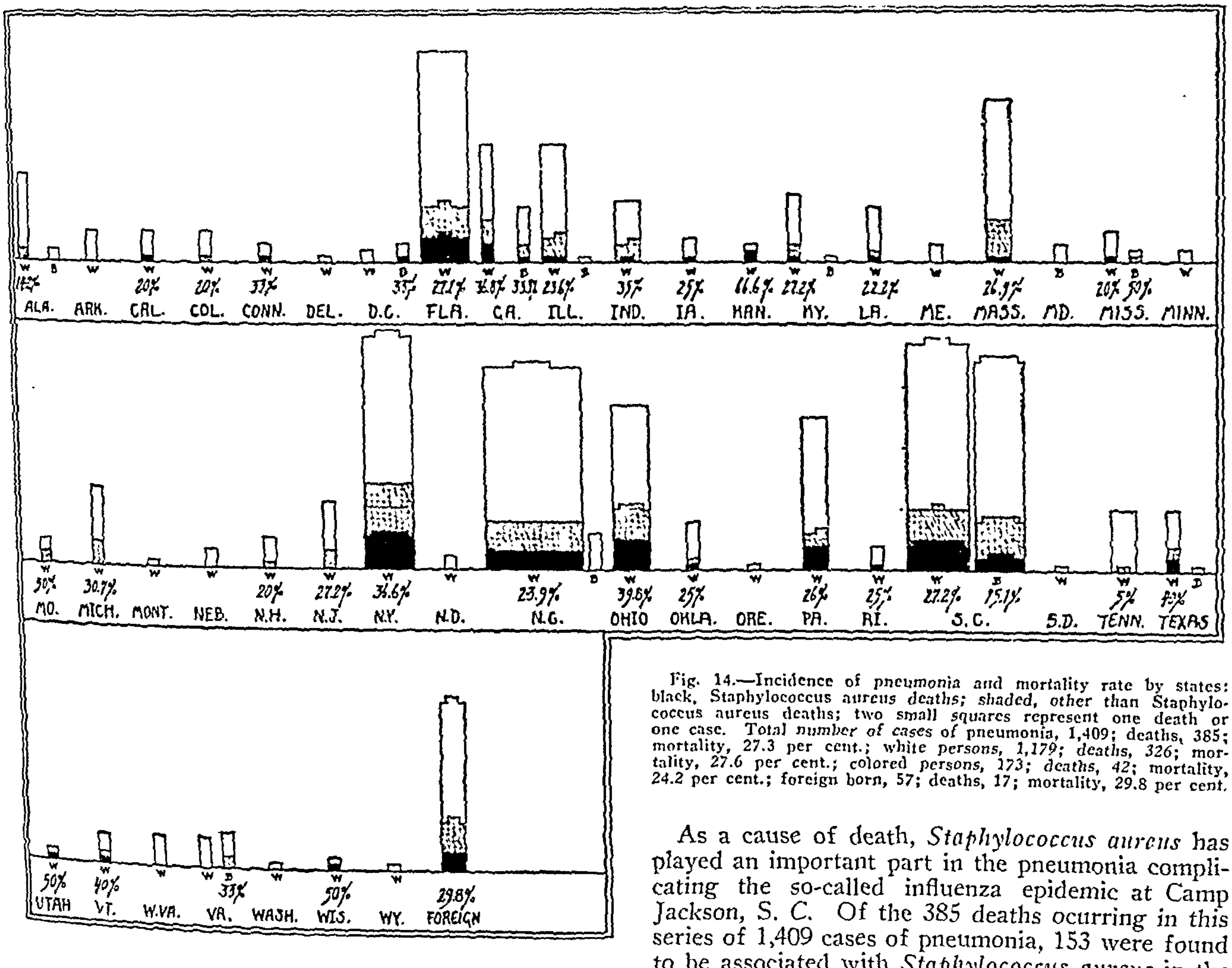

Fig. 14.—Incidence of pneumonia and mortality rate by states: black, Staphylococcus aureus deaths; shaded, other than Staphylococcus aureus deaths; two small squares represent one death or one case. Total number of cases of pneumonia, 1,409; deaths, 385; mortality, 27.3 per cent.; white persons, 1,179; deaths, 326; mortality, 27.6 per cent.; colored persons, 173; deaths, 42; mortality, 24.2 per cent.; foreign born, 57; deaths, 17; mortality, 29.8 per cent.

TREATMENT

The treatment of *Staphylococcus aureus* infection of the lung is extremely ineffectual. Apparently unless the lesions become localized, as happened in two of the cases at the Hospital of the Rockefeller Institute, or there is a localized empyema, the outlook for recovery is extremely bad. The soldiers treated at Camp Jackson were put to bed as soon as possible after they became ill. They were not allowed to get out of bed or to sit up. Very little catharsis was given, dependence being placed on a daily morning enema of soapsuds to keep the bowels open.

As a routine for pneumonia, tincture of digitalis was given in 2 c.c. doses every four hours up to 20 c.c., and continued further if indicated. Camphor in oil,

As a cause of death, *Staphylococcus aureus* has played an important part in the pneumonia complicating the so-called influenza epidemic at Camp Jackson, S. C. Of the 385 deaths ocurring in this series of 1,409 cases of pneumonia, 153 were found to be associated with *Staphylococcus aureus* in the lung. As cultures from the lung were obtained from only 312 of the 385 individuals who died, it is reasonable to suppose that this number does not represent the total mortality due to this micro-organism.

The striking features of the disease are the peculiar cherry-red indigo-blue cyanosis, the fulminating course, the lack of definite signs of consolidation of the lungs, the dirty salmon-pink purulent sputum, and usually a leukopenia.

Pathologically, if the disease is of long enough duration, it is characterized by innumerable abscesses in the lungs.

The prognosis is always grave, though a few patients occasionally survive. Only two patients in this series have recovered.

From the standpoint of our present knowledge, it would seem probable that the particular *Staphylococcus aureus* found in the lungs of these cases was no other than that found often in the mouth secretions of healthy persons. However, the depression of the individual's defensive mechanism by the primary epidemic infection was sufficient to enable these organisms subsequently to produce widespread pulmonary lesions. This, in turn, explains the occurrence of the infection in almost every organization in Camp Jackson and a higher incidence of the infection among the more recent arrivals in camp, irrespective of the states from which they came.

EARLY SUTURING OF WOUNDS OF THE FACE

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The practice of suturing wounds of the body at an early date after injury is at present arousing an active interest among surgeons. The procedure is achieving increased success, undoubtedly because of a better knowledge of the exact nature of war injuries, of a better surgical technic involved, and of a proper use of antiseptics.

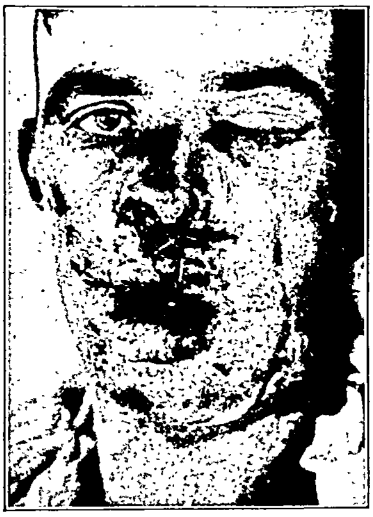
Fig. 1 (Case 1).—Appearance of patient, Aug. 27, 1917, after wound had been closed at a casualty clearing station.

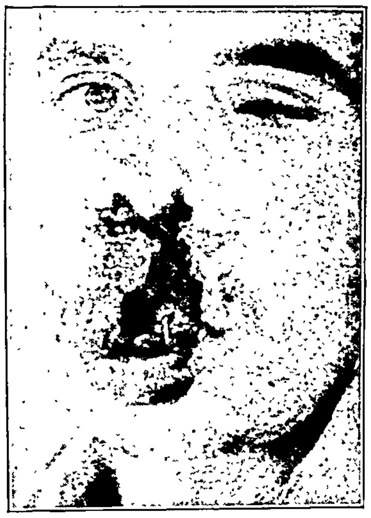
Fig. 2 (Case 1).—Septic condition of tissues and failure of sutures, September 7.

If early suturing can be accomplished, the benefits are obvious: the healing process is materially shortened, many unsightly scars are avoided, and the patient undergoes a briefer period of convalescence.

There has always been a considerable divergence of opinion in regard to the most suitable time for the closure of facial wounds. Some surgeons have recommended early suturing on the grounds that undue contraction of the tissues was forestalled by bringing the lacerated borders together and that subsequent elaborate plastic operations were to a great extent evaded. Others favored late suturing at a time when the wounds were clean, asserting that suppuration and inflammation were greater hindrances than contraction of the tissues to a successful cosmetic effect. A critical analysis of the two opposing views points to the fact that both methods must be followed to obtain a minimum amount of facial disfigurement. The determining factors are the location and severity of the wounds, the amount of involvement of adjacent structures, and the degree of sepsis that has developed.

The vascularity of the facial tissues unquestionably promotes rapid healing and an early reduction or disappearance of inflammation; yet the advantage is partly offset by these conditions:

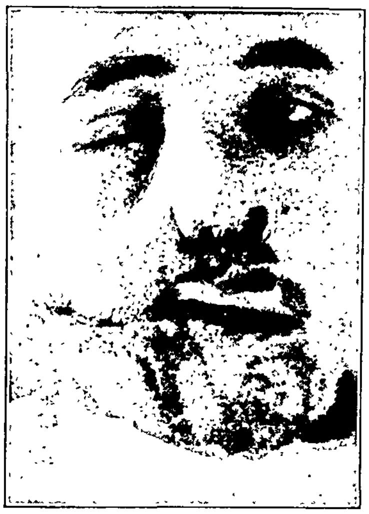
Fig. 3 (Case 2).—Result of operation at a casualty clearing station, June 25, 1917.

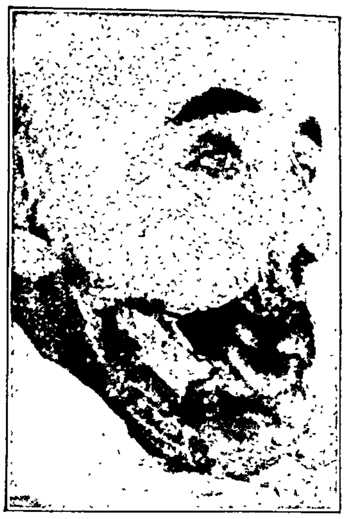
Fig. 4 (Case 2).—Appearance of patient, June 28.

The majority of wounds communicate with the nasal or oral cavities, from which they cannot be isolated, and they are therefore easily and persistently reinfected.

Serious injuries are always associated with a comminution of the bone tissue, the displacement of which exaggerates the size of the wound, favors the inflammation, and facilitates the spread of sepsis.

Liberal excision of the soft tissues, which is an essential feature in the technic of primary suturing of wounds in other parts of the body, is obviously impracticable on the face.

PRIMARY SUTURING

Primary suturing of wounds of the face has been practiced frequently at casualty clearing stations, but the results, as observed at many base hospitals, would lead to the belief that the procedure is totally unsatisfactory and would continue to be so, unless modifications in technic and a careful selection of suitable cases were made. Only in mild and superficial cases has healing taken place, and when the damage to the

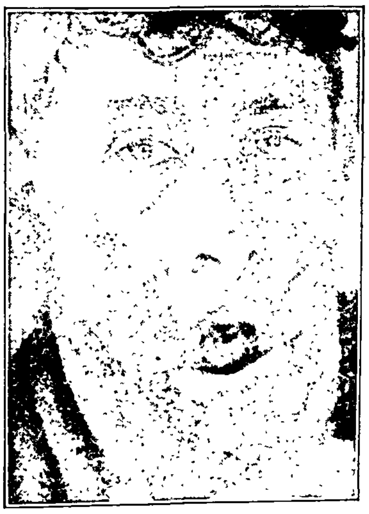
Fig. 5 (Case 3).—Appearance of patient, Sept. 23, 1917, after suturing of wounds at a casualty clearing station.

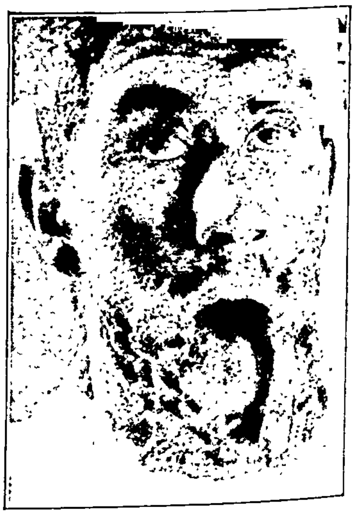
Fig. 6 (Case 3).—Resulting condition, September 27.

soft tissues has been associated with bony injury, the attempted closure has ultimately given way, and brought on added inflammation, sepsis, sloughing, and discomfort to the patient.

Aside from the problem of merely averting a deformity in cases of gunshot wounds of the face and jaws, there remains the necessity of avoiding fatal complications, of establishing drainage, and of restoring function. The treatment of the bony parts cannot at any stage be dissociated from suturing or plastic operations. The shape and expression of the human face depends on the proportional development of the bony substructures; when this framework has been mutilated, its reconstruction is the first essential step in the restoration of facial appearance. And if the bone has suffered pronounced loss, suturing or plastic operations can be performed only with artificial substitutes for this framework.

Bearing in mind that sepsis, fractures and the loss of natural support are obstacles to successful primary suturing of wounds of the face, one will see that hastily conceived operations really accomplish nothing, for if the stitches fail, the progress of the patient has been retarded, while if they hold, the deformity and the suppuration are likely to be intensified.

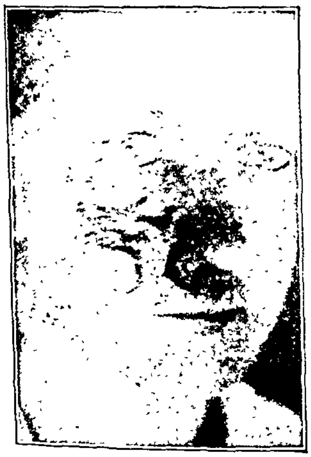

Fig. 7 (Case 4).—Appearance of patient on admission, Aug. 2, 1916.

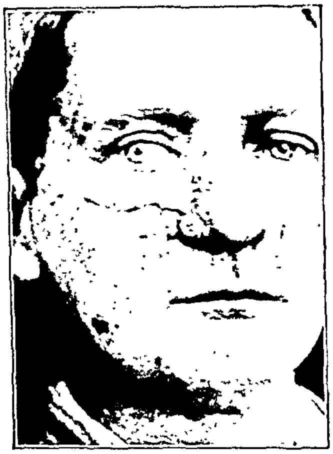

Fig. 8 (Case 4).—Condition on evacuation, August 20.

Cases 1, 2 and 3—unfortunately representative of a large number—demonstrate the results of injudicious primary suturing in cases of extensive wounds:

Case 1.—Private H., wounded, Aug. 24, 1917, and admitted to the hospital, August 26, had been hit by pieces of metal which had destroyed a portion of the upper lip and caused wounds of the right cheek, right half of the lower lip, and the nose. The left eye also was injured. In the upper jaw the teeth and alveolar process of the right side and anterior region were destroyed, and in the lower jaw there was a comminuted fracture in the right bicuspid region, accompanied by loss of all teeth on the right side except the second molar. The wound had been completely closed at a casualty clearing station, as seen in a photograph taken on August 27 (Fig. 1). The tissues were extremely septic, and the sutures had failed, as shown in Figure 2, of September 7.

Case 2.—Private L., wounded, June 22, 1917, and admitted to the hospital, June 24, had lost considerable soft tissue of the upper lip, and in addition the wound radiated to the right cheek and chin. A large amount of alveolar process and bone, together with all teeth from the right tuberosity of the maxilla to the left cuspid, had been destroyed. In the lower jaw the comminution and loss of the teeth extended from the right angle to the left cuspid. The result of operation at a casualty clearing station is shown in Figure 3 (photograph taken June 25), and the appearance on June 26 is seen in Figure 4.

Case 3.—Second Lieutenant A., wounded, Sept. 20, 1917, and admitted to the hospital, September 22, had a lacerating wound of the lower lip, right cheek and chin which involved no appreciable loss of soft tissue. The comminution of the mandible extended from angle to angle with pronounced displacement of the fragments and a considerable loss of bony tissue. The wounds had been sutured at a casualty clearing station, as shown in Figure 5 (photograph taken September 23), but the resulting condition, September 27, is illustrated in Figure 6.

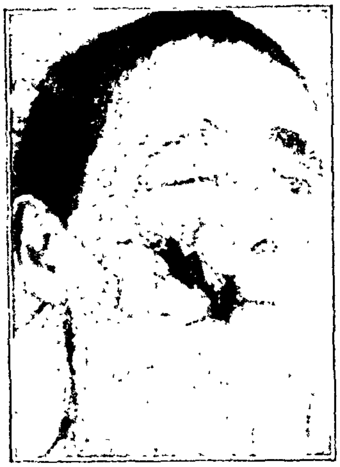

Fig. 9 (Case 5).—Appearance on admission, June 13, 1917.

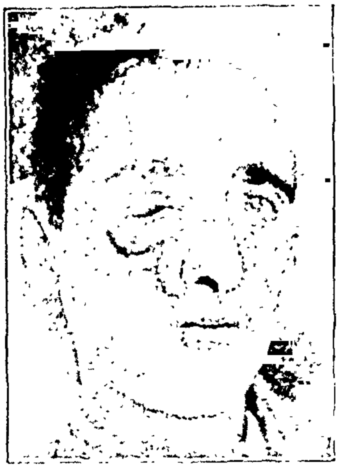

Fig. 10 (Case 5).—Condition on evacuation, July 6.

Certain kinds of wounds, however, appear to respond favorably to primary suturing at advanced units. Superficial wounds with no loss of soft tissue, and also those with slight or no connection with the oral or nasal cavities, in most instances may be closed successfully. The lip borders and also the nose, being delicate and weakly supported, often unite after injury in an unnatural approximation with nearby tissue, and if conditions allow their proper location by operation at an early stage, the benefit is appreciable.

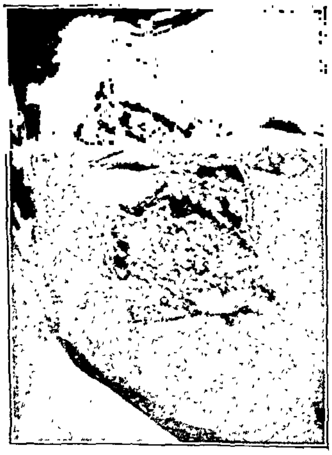

Fig. 11 (Case 6).—Appearance on admission, Aug. 8, 1916; traces are visible of early suturing prior to admission, successful only at the margin of the upper lip.

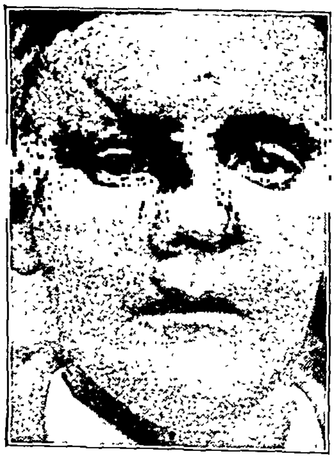

Fig. 12 (Case 6).—Condition on evacuation, September 29.

While, however, steps may have been taken on the one hand to improve the appearance of the face, on the other the individual may have been harmed in other ways. The need of avoiding a general anesthetic cannot be overemphasized when the patient is suffering from gunshot wounds of the face and jaw, for the presence of sepsis in the oral cavity only too often leads to respiratory complications. From our experience, a very high percentage of deaths from bronchopneumonia have given a previous history of the administration of a general anesthetic.

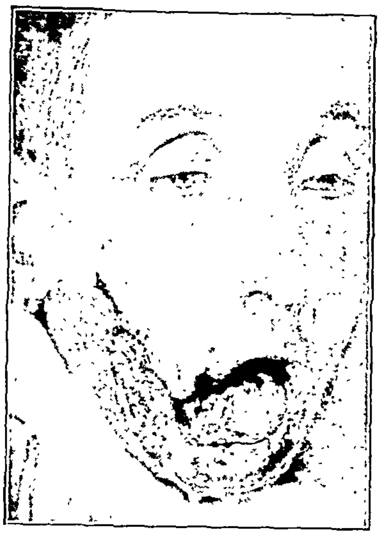
Fig. 13 (Case 7).—Appearance on admission, March 20, 1917.

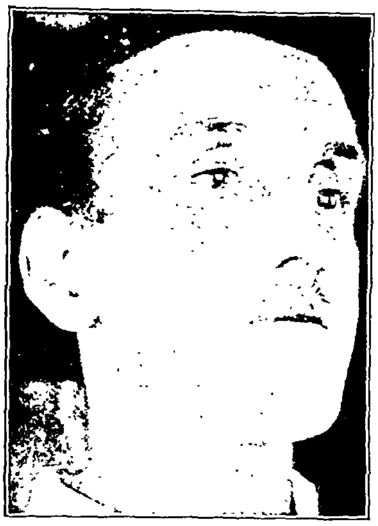
Fig. 14 (Case 7).—Condition on evacuation, August 14.

If suturing is attempted, it should be invariably under a local anesthetic, not only because it evades the occurrence of complications, but also because the area affected by the injury is often so reduced in sensitiveness that anesthesia is gained by small amounts of procain in conductive or infiltrative injections.

EARLY SECONDARY SUTURING

While there does not appear to be more than a limited field for primary suturing, there is broad scope for early secondary suturing. Most cases have been done between the fifth and twelfth day after injury, depending on the nature of the wound, the condition of the patient, and the severity and duration of the infection. Fixation of the bony fragments and a control of sepsis *always* precede the operation. The types are:

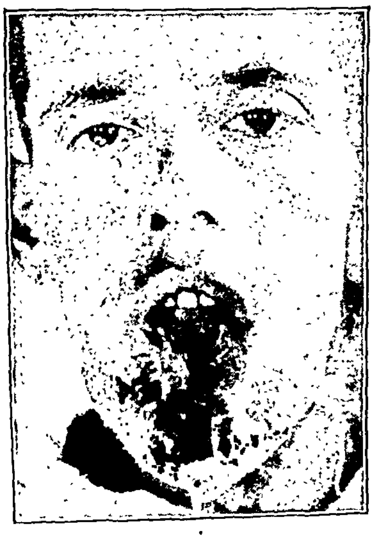
Fig. 15 (Case 8).—Appearance on admission, Sept. 22, 1917.

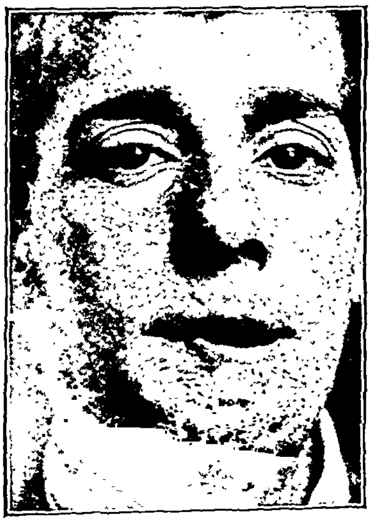
Fig. 16 (Case 8).—Condition on evacuation, Oct. 30.

(*a*) Wounds in which there is slight or no bony injury.

(*b*) Wounds involving extensive bony injury *without loss* of soft tissue.

(*c*) The radiating parts of certain wounds, as a definite step in preparation for a later plastic operation.

In all cases the preliminary treatment of the injuries is directed to reduce the inflammation and edema as soon as possible by fomentations and frequent dressings with eusol (a solution prepared by mixing chlorinated lime, 12.5 gm., and boric acid, 12.5 gm., with water to make 1 liter, and filtering). The oral cavity and wounds are syringed freely and frequently with antiseptic solutions—such as potassium permanganate or boric acid—and adequate drainage is maintained. Then, when the wound appears clean, suturing is attempted, with special precaution to avoid tension by the use of sliding skin flaps or the undermining of the adjacent surfaces. It is often advisable to leave a small portion open to continue the proper drainage.

WOUNDS WITH SLIGHT OR NO BONY INJURY

Case 4.—Private M., wounded, July 30, 1916, and admitted to the hospital, August 2, had a wound of the right cheek and also of the nose with some laceration (Fig. 7). No comminution from the wound to the antrum, nasal cavity, or mouth had been caused, but the upper jaw as a whole was fractured without displacement or complication. August 10, the soft tissues were practically free from sepsis and were sutured. The condition of the wound on evacuation of the patient, August 20, is shown in Figure 8.

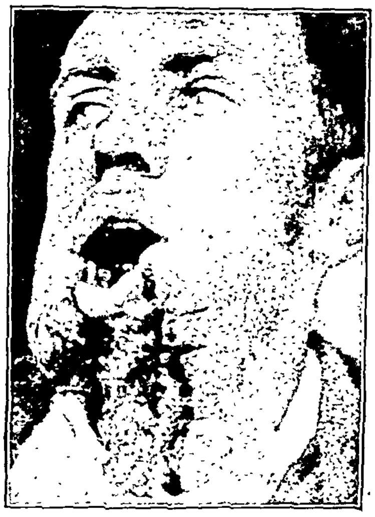
Fig. 17 (Case 9).—Appearance on admission, June 30, 1917.

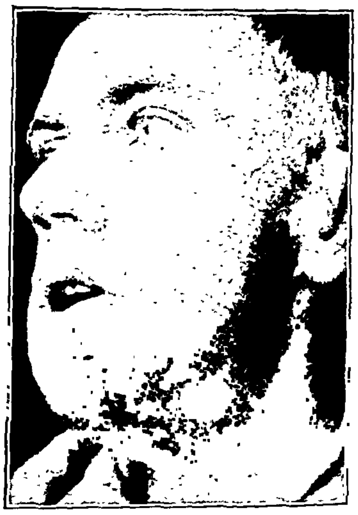
Fig. 18 (Case 9).—Condition on evacuation, October 14.

Case 5.—Private D., wounded, June 10, 1917, and admitted to the hospital, June 13, had an extensive lacerating wound of the right cheek (Fig. 9). The superior maxilla as a whole was fractured without comminution or displacement, and there was a simple fracture of the right ascending ramus of the mandible, without complicating factors. A small opening led to the right antrum, which, in turn, drained intra-orally at the upper right biscuspid region. The wound was closed, June 27. The right eye had been enucleated, June 15, under a general anesthetic, and it was necessary to allow slight drainage at the upper end of the wound. On evacuation, July 6, the suppuration had practically ceased. The facial appearance is shown in Figure 10.

Case 6.—Private De., wounded, Aug. 5, 1916, and admitted to the hospital, August 8, had superficial wounds of the right supra-orbital region, cheek, nose and upper lip (Fig. 11). There was only slight bony injury to the nose. By August 26, the wounds were clean and sutured (by Major Wheeler). An external appliance was used immediately to maintain the position of all soft parts during the process of healing. September 10, a slight correction was made in the left ala of the nose. The patient was evacuated, September 20, as shown in Figure 12. The first photograph (Fig. 11) shows traces of early suturing prior to admission, which was successful only at the margin of the upper lip. Failure may be attributed to sepsis and to excessive tension on the sutures, which in the later operation was avoided by appliances.

WOUNDS INVOLVING BONY INJURY

Wounds involving bony injury vary extensively in regard to the severity and amount of destruction. They all suppurate freely, and the inflammation is marked. The early treatment is directed toward the reduction of sepsis and swelling by the use of frequent irrigation and fomentations. All irritating and *useless* fragments of bone or teeth are removed, splints for the reduction of the fracture applied, and appliances in certain instances also used to support the soft tissues.

Suturing is not attempted until the inflammation has disappeared from the parts, and then the entire wound is not always closed, since abundant suppuration takes place from within the oral cavity from the injured bone.

Cases 7 to 11 illustrate this condition:

Case 7.—Private T., wounded, March 17, 1917, and admitted to the hospital, March 20, had a small wound of entrance in front of the left ear and a large wound of exit on the right cheek involving the angle of the mouth. There was no appreciable loss of soft tissue (Fig. 13). About three fourths of the maxilla, and all the teeth and alveolar process, were destroyed, resulting in perforation of both hard and soft palate. Various mechanical supports were used to mold the palate, and April 1, the wound was sutured. The patient was supplied with oral restorations and evacuated, August 14, as shown in Figure 14.

Case 8.—Private H. T., wounded, Sept. 20, 1917, and admitted to the hospital, September 22, had a large vertical wound of the lower lip and chin (Fig. 15). In the lower jaw there was comminution with much loss of bone between the bicuspid regions. A lower metal splint was adjusted, October 3. The wound appeared clean, October 7, and was sutured. The patient was evacuated, October 3, as seen in Figure 16.

Case 9.—Gunner C., wounded, June 27, 1917, and admitted to the hospital, June 30, had a large wound extending from the lower lip to the chin, sublingual region and neck (Fig. 17), but there was no appreciable loss of soft tissue. The mandible was severely comminuted from the left to the right molar regions. The loss of mandibular continuity at the symphysis was about 1 inch. July 8, several fragments of necrotic bone were removed, and a splint was adjusted to immobilize the remaining portions of the mandible. July 15, the wounds were clean and were sutured. October 9, certain scars and folds in the submaxillary region were removed. The patient was supplied with a temporary plate and evacuated, October 14 (Fig. 18).

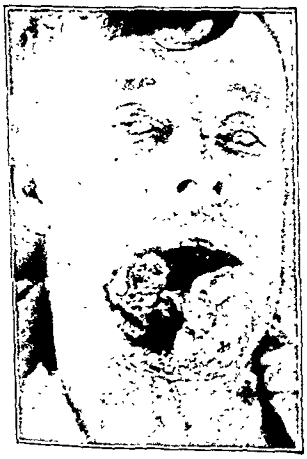
Fig. 19 (Case 10).—Appearance on admission, June 12, 1917.

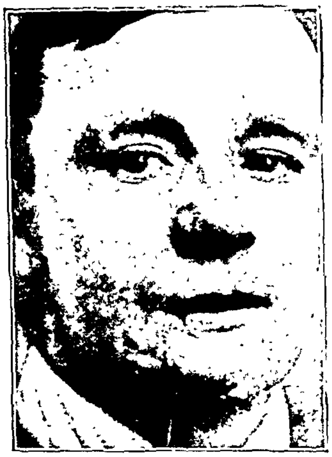
Fig. 20 (Case 10).—Condition on evacuation, November 19.

Case 10.—Private B., wounded, June 10, 1917, and admitted to the hospital, June 12, had a large wound of the lower lip, right side of the chin and submaxillary region (Fig. 19). The mandible was severely comminuted from the median line to the right second molar. June 17, a lower metal splint was fitted. June 27, the wound was sutured. October 17 and 29, small incisions were made in the submaxillary region for drainage and abscesses. November 1, scars on the face were excised, and on November 19 the patient was evacuated (Fig. 20).

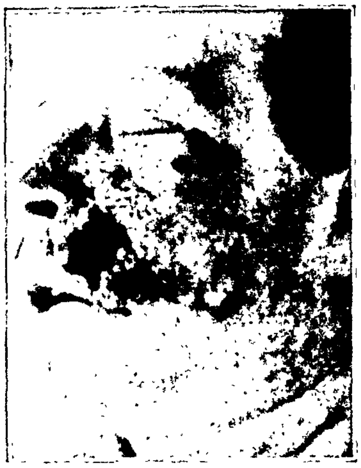
Fig. 21 (Case 11).—Appearance on admission, Feb. 1, 1916.

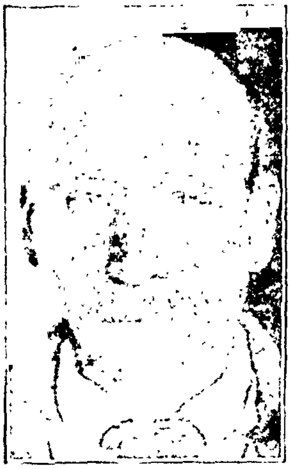
Fig. 22 (Case 11).—Condition on evacuation, June 6.

Case 11.—Private A. M., wounded, Jan. 29, 1916, and admitted to the hospital, February 1, had been hit by a bullet which entered anterior to and above the left angle of the mandible. There was a wound of exit which lacerated the tissues of the left upper lip and cheek to the left of the nose (Fig. 21). The mandible was uninjured. The maxilla was severely lacerated and all teeth were destroyed except the right molars and the right central, lateral and cuspid. The bone carrying these three teeth was very loose. The palate was about one half lost. February 17, the useless teeth and pieces of bone were removed. February 12, a vulcanite splint was adjusted to mold the palate vault and to immobilize the anterior segment of the maxilla. The wound was sutured on the same date. A denture was supplied and the patient was evacuated, June 6 (Fig. 22).

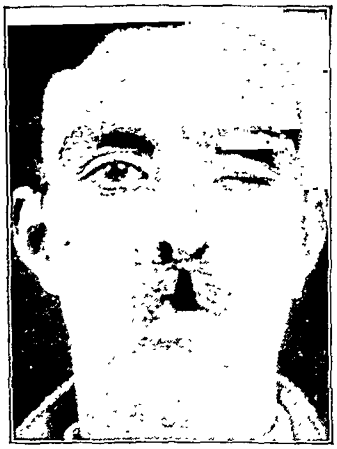
Fig. 23 (Case 1).

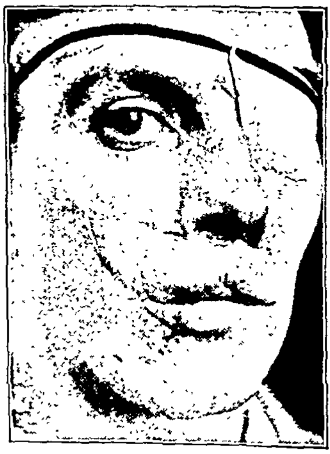
Fig. 24 (Case 1).—Condition on evacuation, Feb. 24, 1918.

WOUNDS INVOLVING EXTENSIVE DESTRUCTION OF THE SOFT TISSUES

The reconstruction of a part of the face must invariably be postponed until all suppuration has disappeared and the wound is in a healthy condition. It then demands a careful planning of flaps and appliances. The success of the final operation is augmented by the careful preliminary treatment, by the control of scar formation, by perhaps judicial early secondary suturing only of certain radiating parts, and by the maintenance of the oral cavity in a condition suitable for appliances or later oral restorations.

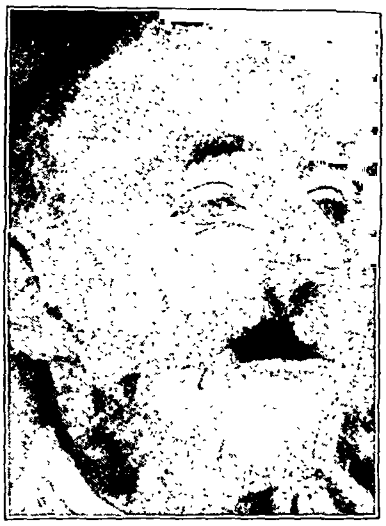

Fig. 25 (Case 2).

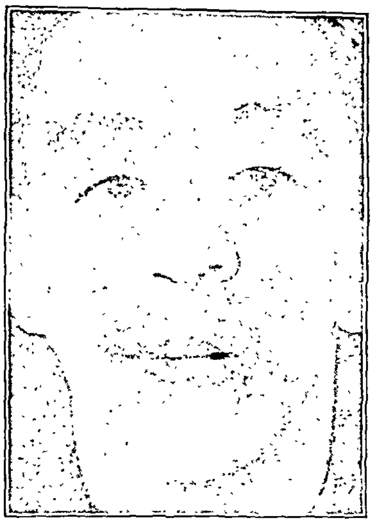

Fig. 26 (Case 2).—Condition on evacuation, March 23, 1918.

To illustrate examples of this type, the completed histories of Cases 1, 2 and 3 are given:

Case 1 (Continued, Fig. 23).—Sept. 2, the mouth was cleared of the remaining useless teeth and alveolar process, and September 8 a lower metal splint was used to immobilize the mandible. September 10, the portion of the wound radiating to the right cheek was sutured, and on the following day, upper and lower vulcanite splints, designed to maintain the facial contour, were adjusted. December 29, the upper lip was reconstructed. Feb. 12, 1918, dentures were inserted. January 26 and February 19, operations were performed to modify the shape of the mouth and lips, and to remove scars. On evacuation, February 24 (Fig. 24), the lower jaw was united, and the remaining bony tissue and mucous membrane of the maxilla was in a healthy condition.

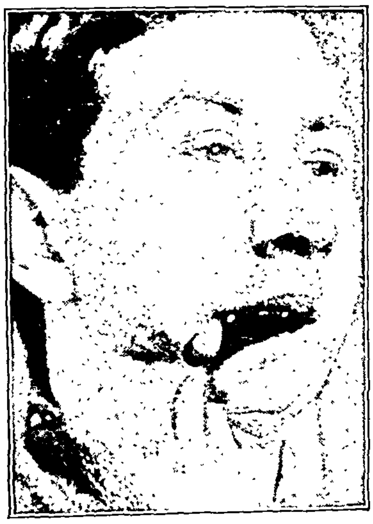

Fig. 27 (Case 3).

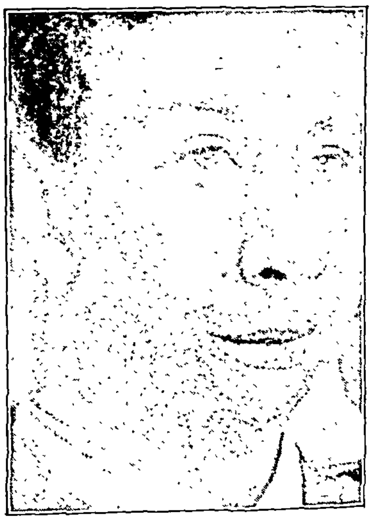

Fig. 28 (Case 3).—Condition on evacuation, April 2, 1918.

Case 2 (Continued, Fig. 25).—July 7, there was a hemorrhage from the right antrum, which did not recur after packing. Vulcanite intermaxillary splints were fitted, July 12. July 14, that portion of the wound which radiated to the cheek was sutured. The upper lip was reconstructed, October 1. July 17 and 19, 1917, and Jan. 25 and March 12, 1918, smaller corrective operations were performed, following the two major plastic operations. Dentures were supplied and the patient was evacuated, March 23 (Fig. 26). The lower jaw was united and the mucous surfaces of the upper jaw were in a healthy condition.

Case 3 (Continued, Fig. 27).—Oct. 4, 1917, a lower metal splint was fitted. November 3 and 5 and December 27, certain pieces of necrosed bone and useless teeth were removed. A vulcanite intermaxillary splint was inserted, November 21, which served to give the requisite fulness to the lower lip. Plastic operations were performed, Jan. 15 and March 22, 1918. On evacuation, April 2, 1918 (Fig. 28), there was fibrous union in the right bicuspid region and mobility in the left second molar region.

All operations on the soft tissues, or for cleaning the mouth, except in Case 6, were performed under a local anesthetic.

SCHISTOSOMIASIS (OF BILHARZ) ASSOCIATED WITH UNCINARIASIS

REPORT OF A CASE *

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NEW YORK

The disease caused by *Schistosomum hematobium* of Bilharz, so rare in this country as to be of little importance to the general profession or even to the sanitarian, may, nevertheless, because of its infrequency, prove of sufficient interest to warrant the publication of an account of a case. A brief description of the disease may also be of interest.

Although seldom seen here, this disease is so prevalent in Egypt, it is said, that fully 50 per cent. of the population is affected. In this country only a few cases have been reported, and all cases seen thus far have been imported.

The schistosomum belongs to the class of animal parasites known as the trematode, fluke or flatworm, and there are three distinct varieties pathogenic to man recognized by modern authorities: *Schistosomum hematobium*, *Schistosomum mansoni* and *Schistosomum japonicum*. Of the many names that have been attached to the particular variety here described, the term *Bilharzia hematobia* is perhaps the best known. In schistosomiasis the parasite itself occurs in the liver, and in the veins of the portal and urinary systems principally, particularly the mesenteric and vesical, depending on which variety of parasite is present.

The *Schistosomum hematobium* is bisexual and is commonly found united in pairs. The male is from 11 to 15 mm. in length and 1 mm. in breadth,[1] and has the appearance of a roundworm, this appearance being caused by the infolding of the flat body of the parasite to form a ventral, longitudinal groove, the so-called gynecophoric canal, which extends nearly its entire length, and serves for lodgment of the slender filiform female, the body of the male being actually wrapped around that of the female. On its ventral surface anteriorly are two suckers, and its body is thickly studded with small elevations. The female is longer, much more slender, darker in color, filiform and smooth. Its body is free at the ends, but is embraced in the middle by that of the male.

The ova are large and distinctive in appearance, being especially characterized by the presence of a very definite sharp spine on one end, and a capsule of varying thickness. Figure 1 presents their characteristic appearance. They are very readily detected by the low power of the microscope. For many years ova which were supposed to be those of *Schistosomum hematobium* have been observed which, instead of having a terminal, possessed a lateral spine. Numerous theories and conjectures were advanced to explain this condition, many investigators believing that the position of the egg in the tissues determined the location of the spine, others that the position of the spine denoted whether or not fertilization had taken place, and still others, that the two types of eggs belonged to different species. The latter view has recently been conclusively proved to be correct,[2] and it is now known that *Schistosomum hematobium* produces terminal-spined eggs only and *Schistosomum mansoni* lateral-spined eggs, while those of the *Schistosomum japonicum* are spineless. In general it may be stated that the first mentioned variety causes urinary disease, the second rectal disease, and the third disease of the colon, rectum and mesenteric nodes.

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* From the Department of Laboratories, New York Post-Graduate Medical School and Hospital.

[1] Manson, Sir Patrick: Tropical Diseases, Ed. 6, New York, Cassell & Co., 1917, p. 743.

Until recently nothing was known of the life of this interesting parasite outside the human host, or of the manner in which it gained entrance to the body. Now it is known that the ovum, containing a living larva, leaves the body in the urine, and after coming in contact with fresh water, ruptures the enveloping capsule and escapes, swimming about actively by means of numerous ciliary projections. Later the larva, or miracidium, finds an intermediate host in the body of a certain snail—*Bulinus*—in the case of *Schistosomum hematobium*. In the liver of the snail it develops into great numbers of long cylindric bodies, the sporocysts and daughter sporocysts. Within each of these a cercaria develops and escapes into the water. This has the power of penetrating the skin of man and other animals, and so gains entrance to the blood vessels and lymphatics. By this route it finally reaches the liver, where it is ready to begin a new cycle of development into the flatworm.

Fig. 1.—Characteristic appearance of (*A*) ovum of Schistosomum hematobium; (*B*) miracidium; (*C*) ruptured capsule; (*D*) ovum of uncinaria. (This and the accompanying illustration were drawn by K. K. Bosse.)

After about six weeks the worms reach maturity, unite in pairs and descend, against the current of blood, into the mesenteric and vesical veins, the bilharzian variety choosing the latter route, thus gaining entrance to the bladder wall, where the eggs are deposited. Just how all this is accomplished is still somewhat obscure, but it seems natural to suppose that the suckers of the male play an important part, as they do in other animal parasites. The eggs being deposited in the bladder wall, the life cycle of the parasite is completed, and in the majority of cases symptoms are produced.

The symptoms of the disease vary somewhat in different persons depending on the severity of the infection, the condition of the person, his occupation, etc. The most constant symptom is a terminal hematuria caused by the passage of the ova through the bladder wall, this passage in all probability being effected by means of the sharp terminal spinous process. Having fallen into the bladder, the ova are voided in the urine, especially in the last few drops excreted, which contain the greatest amount of blood. Pain is frequently present in the region of the bladder and along the urethra. Complications may arise from the cystitis, such as renal calculus, urinary retention, hydronephrosis or pyonephrosis, pyelitis, etc., which may cause serious consequences and even death; these give the usual symptoms of those conditions. Anemia also may result, causing constitutional predisposition to other diseases. Other complications which are said not to be uncommon are urinary fistula and urethral stricture.

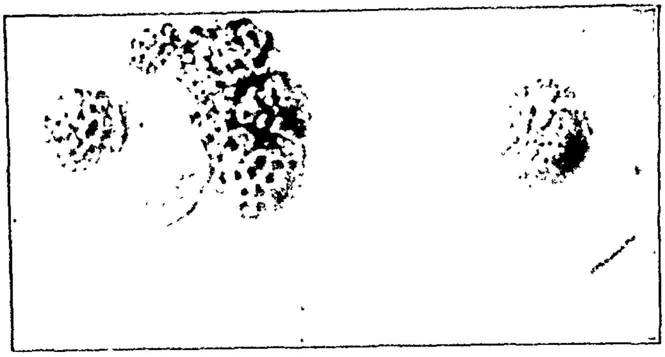

Fig. 2.—Cystoscopic view (reproduced through the courtesy of Dr. J. Bentley Squier, director of the Department of Urology).

The pathology of this disease may vary from a mild cystitis with dilated vessels, catarrhal mucous membrane, slight hemorrhage, and small vesicular or papular elevations, to a condition with marked thickening of the bladder wall, destruction of the mucosa, excrescences or new growths projecting into the bladder, encroaching on its capacity, etc. The trigon is said to be the portion most frequently affected, and thickening of this may easily cause occlusion of one or both of the ureters. There is a tendency to the formation of polypoid growths within the bladder, and these are often markedly pedunculated. The small elevations of the mucosa contain ova in large numbers; they occur chiefly in the submucous layer, and their presence tends to produce connective tissue formation, as is the case with any foreign body. The new growths are said occasionally to undergo malignant change, so that the disease must be regarded as causing a predisposition to malignancy. Other organs may also become invaded, notably the seminal vesicles, vagina, uterus and rectum; but this is rather unusual. In very exceptional instances even the viscera of the thorax have been involved.

Diagnosis is readily made by finding the ova in the urine. Examination with the cystoscope may yield valuable information as to the severity of the infection, and the extent of the damage wrought.

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[2] Leiper, R. T.: Relation Between Terminal-Spined and Lateral-Spined Eggs of Bilharzia, Brit. M. J. 1: 411 (March 18) 1916.

The prognosis, according to all writers on the subject, is that of a very chronic cystitis, which is not fatal per se, but may become so through some complication. The smaller the number of worms present, the better the outlook, for obviously these cannot multiply within the human host. Those already present, however, may live for many years and continue to cause symptoms. Removal of the patient from the district in which the disease prevails will prevent reinfection and offer a better chance for eventual riddance of the worms.

Treatment must necessarily be essentially symptomatic, the chief object being to prevent some serious complication. It would appear that nothing could be administered to kill the parasite within the blood vessels without harm to the patient, although good results have recently been reported by the use of emetin intravenously.[3] The general condition of the patient must be looked after, new growths removed, fistulas repaired, ulcerations remedied so far as possible, etc. In the medical treatment many remedies have been tried, but without much success. The hope is that the parent worms may finally die, and thus the extrusion of the ova cease.

Prevention can be effected by avoiding contact with water in endemic districts that has not been rendered free from cercariae by boiling or by some chemical agent. These are able to live only forty-eight hours after being discharged from the snail, but a snail may remain infective over a long period and continue to give off cercariae.[1] Preventing excreta from coming in contact with fresh water would also be effectual, but this, of course, is a hard matter to control. It is said[1] that the cercariae are able to pass through the ordinary municipal filter bed without difficulty, but are easily killed by most of the ordinary germicides used in water purification.

In the foregoing introduction an attempt has been made to outline as briefly as possible what is known regarding the *Schistosomum hematobium* and the disease which it causes. For more extensive information concerning this and the other two types of schistosomiasis, reference is made to the more exhaustive treatises on the subject.

REPORT OF CASE

History.—M. G., a Russian Jew, aged 31, single, presented himself to the Advisory Board situated in the building of the New York Post-Graduate Medical School and Hospital in October, 1918 for examination. He had been born in Russia near Moscow, and had left Russia in 1914 for Palestine, where he remained about a year, leaving there for Egypt early in 1915. He remained in Egypt near Cairo for about a year, during which time he was engaged in farm labor, principally at digging irrigation ditches. He worked barefooted, often standing in water up to his knees or waist. After he had been engaged in this work for about one month he noticed that his urine was no longer clear, and that he had hematuria. He was warned to leave the country at this time, but remained eleven months longer, and then left for America.

Since first observing the blood he had a marked terminal hematuria which he thought had neither abated nor become more intense, although he had observed that the early morning urine contained less blood than at other times during the day. Subjectively, since the beginning, he suffered a slight pain and burning sensation along the urethra, especially near the external meatus, that would last for about five minutes after each micturition. At the onset he was also troubled with great frequency, having to urinate about every half hour; the latter symptom had greatly abated so that he now had a binocturia with only slightly or no increased frequency during the day. He also stated that during the time he remained in Egypt he lost about 25 pounds in weight, which he had not been able to regain; that his general health had not been so good as formerly; that he now became tired very easily, and that all sexual desire was lost. His present occupation was that of shipping clerk in a laundry.

Examination.—The man was sent by the Advisory Board to the laboratory for urinary examination. Observation disclosed that about 5 c.c. of what appeared to be pure blood were passed at the end of urination, and microscopic examination confirmed the presence of a large amount of blood besides large numbers of the ova of the *Schistsomum hematobium* of Bilharz. These were very typical in appearance, having a terminal spine, and it is interesting to note, from a biologic standpoint, that in a large number of examinations, during which hundreds of ova were seen, not one with a lateral or subterminal spine was found.

An attempt was made to rupture the enveloping capsule and set the miracidium free by diluting the urine with fresh water. This proved successful, one ovum being observed during the process. The rupture was sudden and complete. Figure 1 shows the ovum and miracidium as they appeared with a Leitz ocular No. 4, objective No. 6.

A blood examination was next made, which revealed: hemoglobin (by Sahli method) 100 per cent.; erythrocytes, 4,344,000; color index, 1.16; leukocytes, 8,400; differential count of leukocytes: neutrophils, 56 per cent.; lymphocytes, 43 per cent.; basophils, 1 per cent. Contrary to expectations, no eosinophils were found in this examination even after prolonged search. Subsequent examinations, however, revealed an eosinophilia ranging around 6 and 7 per cent. No change of any significance was seen in the other elements.

Chemical examination revealed: urea nitrogen, 17.2, uric acid 2.5, and creatinin 2.3 mg. per hundred c.c. of blood, which would indicate that the kidneys either were not involved, or were at least still able to carry on normal functional activity. The blood sugar was 0.13 per cent.

The Wassermann test was negative.

The patient was admitted to the hospital for observation and treatment, October 22, and a cystoscopic examination was then made by Dr. Maximilian Stern, and later a second examination was made by Dr. J. F. McCarthy. Dr. Stern reported that the trigon and ureteral orifices were pale and apparently normal; the right lateral wall had several herpetic areas consisting of yellowish white, pinhead sized spots in clusters, surrounded by a red areola; in some of these areas the white elevations were nearly spherical, as if ready to erupt. On the posterior aspect of the bladder mucosa were seen carcinomatous-like elevations, ragged and red, one of which was pedunculated and spherical, of about the size of a hazelnut. Several of these masses were present in herpes-like patches.

The physical examination was negative, revealing a man well nourished and apparently normal. The liver was normal in size, shape and consistency, so far as could be ascertained.

Since *Schistosomum hematobium* is said occasionally to invade other organs of the abdomen and pelvis besides the bladder, an examination of the feces was made for evidence of intestinal involvement. The benzidin test for occult blood was very strongly positive, and careful search with the microscope showed a complete absence of eggs of the schistosomum. Hookworm eggs, however, were present in quite large numbers. It seems most probable to suppose that the latter disease was also contracted during the patient's stay in Egypt. In several instances living hookworm embryos were observed within the egg capsules, and incubation for twenty-four hours caused a rupture of the capsule and emergence of the embryo, so that after incubation the living embryos could easily be found in the stool.

Treatment and Result.—Treatment of the case consisted chiefly of bladder irrigations with argyrol and silver nitrate. Hematuria was lessened and the patient was dicharged, October 31, the general condition being considerably improved.

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[3] Lemierre, A., and Lantuéjoul, P.: Un cas de bilharziose vésicale traitée par les injections intraveneuses de chlorhydrate d'émétine, Bull. et mém. Soc. méd. d. Hôp. de Paris, June 21, 1918, p. 640.

THE COMPLEMENT FIXATION TEST IN INFLUENZAL PNEUMONIA

STUDIES WITH SERUM FROM CONVALESCENT PATIENTS, THE INFLUENZA BACILLUS BEING USED AS ANTIGEN *

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These experiments were performed to ascertain whether patients who had recovered from the bronchopneumonia accompanying influenza had developed antibodies that could be demonstrated by the complement fixation test, *Bacillus influenzae* being used as antigen.

During the recent epidemic in the First Naval District, attempts were made in this laboratory to demonstrate agglutinins, precipitins or opsonins in the blood of the patients who had the disease. The results so far have been negative with *B. influenzae*. This, indeed, was disappointing, as it was hoped that individuals who had recovered might show some demonstrable changes in the blood which would indicate the part the immune processes might have played in their recovery.

This expectation was especially strengthened in view of the highly suggestive results obtained by Drs. McGuire and Redden[1] in their treatment of patients in the active stage of influenzal pneumonia with serum from patients who had recovered from the condition. Hartman,[2] and Ross and Hund[3] have described the use of citrated blood in treating similar cases, and they also report favorable results.

At first, the serums from patients having uncomplicated influenza were tested, but these did not give very satisfactory or encouraging results. Consequently, the serums from patients who had had influenzal pneumonia were studied.

The object of this series of experiments has been to throw light on these questions:

1. Does the influenza bacillus (found in more than 80 per cent. of the lungs at necropsy in this laboratory[4]) give rise to the formation of specific antibodies?
2. Is the complement fixation test of any value in confirming a diagnosis of the bronchopneumonia accompanying influenza?
3. Can one demonstrate the complement-fixing antibodies in the serums of recovered individuals, which serums have been found valuable in the serotherapy of influenzal pneumonia?
4. Did many strains or only one specific strain of *B. influenzae* become virulent during the epidemic?

ANTIGENS

Preparation.—Antigens were prepared by various methods, and their respective values were determined by titration. The methods are described in the order of antigenic superiority of different preparations:

Method 1: The influenza bacillus was obtained at necropsy from the lung, being grown on blood agar plates. Characteristic colonies were transferred to flasks containing 100 c.c. of glucose broth (0.5 per cent.) and 5 drops of sheep's blood previously diluted with broth 200 times (by volume). After three days a good growth usually was obtained. To control the purity of this culture, a loopful of it was streaked out on blood agar, and twenty-four hours later the plate was examined. If this test was satisfactory, 0.3 per cent. tricresol was added to the glucose broth culture and it was again incubated at 37 C. for twenty-four hours, when it was tested for sterility. The killed broth culture was centrifuged for twenty minutes at 2,500 revolutions per minute. The supernatant fluid was poured off and the sediment taken up in 40 c.c. of physiologic sodium chlorid solution and washed three times by centrifuging with fresh salt solution (0.85 per cent.) each time. Finally, the washed sediment was taken up in exactly 30 c.c. of saline (0.85 per cent.). Sterile beads were added and the suspension shaken for twenty minutes.

Fourteen different antigens were made in this manner, each one being prepared from a culture of influenza bacillus obtained from a different necropsy. Of this number only nine were found to possess good antigenic value.

Method 2: Five antigens made from a mixture of more than one strain of influenza bacillus were prepared, in the same way as described in Method 1. Three of these five antigens contained four different strains of the influenza bacillus; one contained six strains, while one had eight strains.

Method 3: These antigens were made as in Method 1, except that after the sediments had been washed, the bacteria were ground up in a sterile mortar and then 30 c.c. of physiologic sodium chlorid solution were added.

Method 4: Sections of lung tissue weighing 2 gm. were selected from patients that had died from influenzal bronchopneumonia. These portions of tissue were examined, and when they showed a gram-negative bacillus, morphologically and culturally resembling the Pfeiffer bacillus, 0.3 per cent. tricresol was added and the tissue was ground up in a sterile mortar. Twenty-four hours later, after incubation at 37 C., it was tested for sterility. The final volume was made up to 30 c.c. by the addition of salt solution.

Method 5: The influenza bacillus was grown as described in Method 1. The broth culture was centrifuged for twenty minutes at 2,500 revolutions per minute. The sediment was washed three times with salt solution, and the sediment was then taken up in 30 c.c. of salt solution (0.85 per cent.). This suspension was then heated for one-half hour at 56 C. It was then tested for sterility by streaking a loopful on blood-agar and incubating for twenty-four hours at 37 C. When no growth was evident after twenty-four hours, 0.1 c.c. of 1 per cent. phenol to every cubic centimeter of antigen was added as a preservative.

Method 6: A gram-negative bacillus resembling Pfeiffer's organism, by culture and morphology, was obtained from the bronchial sputum of two patients having influenzal pneumonia. (These patients subsequently recovered from the disease.) The preparation of the antigen was the same as in Method 1.

Method 7: The influenza bacillus was grown on blood agar. A staphylococcus was planted on the plate to cause a more abundant growth. After twenty-four hours, an attempt was made to wash off the influenza colonies; but a staphylococcus contamination could not be avoided by this method. Tricresol, 0.3 per cent., was added, and the final volume was made to 30 c.c. by the addition of physiologic sodium chlorid solution. After twenty-four hours' incubation, the antigen was tested for sterility.

Conclusions from a Comparative Study of These Antigens.—1. The preparations described in Method 1 form the best antigen.

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* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of a table giving the results of the tests in detail. The article appears in full in the reprints, a copy of which may be obtained on application to the author.

[1] McGuire, L. W., and Redden, W. R.: Treatment of Influenzal Pneumonia by the Use of Convalescent Human Serum, J. A. M. A. **71**: 1311 (Oct. 19) 1918.

[2] Hartman, F. W.: New Methods of Blood Transfusion and Serum Therapy, J. A. M. A. **71**: 1658 (Nov. 16) 1918.

[3] Ross, C. W., and Hund, E. J.: Transfusion in the Desperate Pneumonias Complicating Influenza, Preliminary Report on the Successful Use of Total Immune Citrated Blood, J. A. M. A. **71**: 1992 (Dec. 14) 1918.

[4] Keegan, J. J.: The Prevailing Pandemic of Influenza, J. A. M. A. **71**: 1051 (Sept. 28) 1918.

2. Grinding up the antigen gave only about 20 per cent. as many positive results as those obtained from the antigen of Method 1.

3. The polyvalent antigens were of no higher antigenic value than those made from a single strain.

4. Antigens made from bacteria grown on solid mediums (Method 7) were not satisfactory, since the suspensions contained too much blood and it was difficult to obtain a suspension that did not also contain the staphylococcus. The antigenic value was very low.

5. The antigens obtained from the organism that was found in the bronchial sputum was valueless.

6. Heating apparently destroys, in a large measure, the complement-fixing substance of a bacterial antigen.[5]

7. The organism obtained from the early cases in the epidemic supplied a better antigen for the fixation test than those from the late cases.

8. The antigens do not deteriorate very rapidly. Some of them retained their power to fix complement three months.

TITRATIONS

The anticomplementary and hemolytic values of each antigen were determined by titration. In finding the anticomplementary dose, varying amounts of the antigen, 0.02, 0.05, 0.1, 0.3, 0.5, 0.7, 0.8, 1.3, 1.5 and 2 c.c. of the undiluted antigen, were added to a series of tubes. To each tube, 1 c.c. of 1:20 complement was added. The volume of each tube was made to 3 c.c. with physiologic sodium chlorid solution. The tubes were then incubated for one and one-half hours at 37 C. Then 0.5 c.c. of amboceptor containing 2 units and 0.5 c.c. of a 2.5 per cent. suspension of sheep's corpuscles were added. The tubes were reincubated for three-quarters hour, when a reading was made. That tube which first showed inhibition of hemolysis contained the anticomplementary unit of antigen.

Of all the antigens made, only three were found to be anticomplementary. In these instances, the antigenic unit was one quarter of the anticomplementary unit. The many antigens that were not found to be anticomplementary were used undiluted. It was found that usually 0.2 c.c. of the undiluted antigen was the antigenic unit when a definite volume of glucose broth (100 c.c.) was used and when the final volume was made to 30 c.c. with salt solution, as described in Method 1.

Each antigen was then titrated against six known positive and six known negative serums before it was used in a series of experiments.

When the antigenic unit was found, this amount of antigen was mixed with 0.5 c.c. of a 2.5 per cent. suspension of sheep's corpuscles, and these were incubated for one-half hour at 37 C. This procedure determined whether the antigen was at all hemolytic in the amount representing one unit.

When the foregoing factors were definitely controlled, the antigen could be used in the tests.

Only a brief description of the reagents used is necessary, since the methods of preparation are practically the same as in the Wassermann reaction:

Complement.—Pooled serum of guinea-pig's blood was used. One hour after the blood was obtained, it was centrifuged and the serum was diluted 1:10 with physiologic sodium chlorid solution. In preparing the complement for titration, 10 c.c. of physiologic sodium chlorid solution were added to 10 c.c. of the 10 per cent. guinea-pig serum.

Serum.—The serums were inactivated for twenty minutes at 56 C. It was found that heating had also a tendency toward destroying antibodies.

Amboceptor.—The hemolytic amboceptor was the same as that used in this laboratory in doing the Wassermann tests. Briefly, it was obtained by immunizing rabbits with sheep's corpuscles. Two units of amboceptor were used in the fixation tests. The amboceptor was diluted so that 0.5 c.c. contained two units.

Sheep's Cells.—These were obtained by a puncture of the jugular vein of the sheep under sterile precautions. The blood was defibrinated with sterile beads, and then 10 c.c. of the blood were put in a 40 c.c. graduated tube. Physiologic sodium chlorid solution was added to 35 c.c. This corpuscle suspension was centrifuged for fifteen minutes at 2,500 revolutions per minute. These corpuscles were washed three times in this way. After the final washing, the supernatant fluid was poured off and the packed cells were read. A 2.5 per cent. suspension of these washed sheep's cells was made by diluting with physiologic sodium chlorid solution.

Sensitized Corpuscles.—Sensitized corpuscles consist of equal parts of 2.5 per cent. suspension of sheep's corpuscles and diluted amboceptor. This mixture was incubated for one-half hour at 37 C. One c.c. of this mixture was used in the complement fixation test.

Before each series of tests, a preliminary combined titration of complement and amboceptor was made, as shown in Table 1.

TABLE 1.—PRELIMINARY COMBINED TITRATION OF COMPLEMENT AND AMBOCEPTOR

Tube	Complement 1:20 Dilution C.c.	Amboceptor 2 Units in 0.5 c.c. C.c.	Sheep's Cells 2.5% Suspension C.c.
1	0.5	0.5	0.5
2	0.4	0.5	0.5
3	0.3	0.5	0.5
4	0.2	0.5	0.5
5	1.0	0.3	0.5
6	1.0	0.2	0.5

To each one of the six tubes in Table 1, physiologic sodium chlorid solution was added to make a volume of 3 c.c. The tubes were incubated at 37 C. for one-half hour. In reading, the least amount of guinea-pig serum causing complete hemolysis determined the size of the unit of complement. If the amboceptor was satisfactory, Tube 5 showed complete hemolysis, while Tube 6 showed moderate hemolysis.

After the combined titration of the complement and amboceptor had been completed, the complement fixation test was thus performed:

Two rows of tubes were set up, as indicated in Table 2. One-tenth c.c. of each of the serums was flowed into one of the tubes in each of the two rows. To each tube in the front row 0.2 c.c. of the antigen and one unit of complement were added. To the rear tubes only one unit of complement was added. The volume of every tube was made to 2 c.c. by the addition of physiologic sodium chlorid solution. Therefore, the front row for each test contained one unit of complement, 0.2 c.c. of antigen and 0.1 c.c. of serum and salt solution, while the respective rear tube contained all of these except the antigen.

These additional controls were made with every series of tests:

(*a*) Antigen control, containing the unit of complement, the unit of antigen, and physiologic sodium chlorid solution to 2 c.c.

(*b*) Hemolytic control, containing the unit of complement and physiologic sodium chlorid solution to 2 c.c.

All the tubes were then shaken thoroughly and incubated for one and one-half hours at 37 C. Then 1 c.c.

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[5] Perry, M. W., and Kolmer, J. A.: A Study of the Immunizing Properties of Bacterial Vaccines Prepared after Various Methods, J. Immunol. 3: 258 (July) 1918.

of sensitized corpuscles was added to each tube and they were reincubated for three quarters of an hour, when a preliminary reading was made. The tubes were put into the refrigerator, and a final reading was made the next morning.

As mentioned above, these tubes were incubated at 37 C. for one and one half hours, when 1 c.c. of sensitized corpuscles was added. The tubes were reincubated then for three quarters of an hour and a preliminary reading was made. There should be complete hemolysis in Tubes II, III and IV. If the serum is anticomplementary, there will be inhibition of hemolysis in Tube II, and no reading can be made in Tube I. But if this is not so and there is inhibition of hemolysis in Tube I, then this serum is positive, while it is negative when there is hemolysis.

PERFORMANCE OF THE EXPERIMENTS

As mentioned previously, this series of experiments was performed to determine the occurrence of the complement fixation test on serums from patients who were recovering from influenzal pneumonia, the condition having been determined by physical and clinical signs. To control the specificity of the reaction, a number of individuals were examined who gave no history of the disease during the epidemic and who stated that they were not subject to colds and coughs. Some stress was laid on the last factor, since an ambulatory form of influenza is very probable.

TABLE 2.—SCHEME FOR THE COMPLEMENT FIXATION TEST

Tube II Unknown Serum 0.1 c.c. of serum (Patient A) 1 unit of complement Physiologic sodium chlorid solution added to 2 c.c.	Tube IV Antigen Control 0.2 c.c. of antigen 1 unit of complement Physiologic sodium chlorid solution added to 2 c.c.
Tube I 0.1 c.c. of serum (Patient A) 1 unit of complement 1 unit of antigen (0.2 c.c.) Physiologic sodium chlorid solution to 2 c.c.	Tube III Hemolytic Control 1 unit of complement Physiologic sodium chlorid solution to 2 c.c.

It may be questioned whether such serums could be used as satisfactory controls, as it may be that those that did not come down with the disease had enough antibodies or natural immunity to overcome the virulent organism. This may explain the positive results obtained from some of the controls.

A few serums were tested from patients who still had a high temperature due to the pneumonia, and these are also included in Table 3.

It was endeavored to test blood from patients at different periods of convalescence. Some serums were tested when the temperature had been normal one day, while others were tested when the patients had been convalescent for forty-one days.

When serums were found to be positive, they were later tested at different intervals so as to determine how long the antibodies persisted.

The test and control serums were all negative to the Wassermann reaction, which was performed simultaneously.

MAIN RESULTS FROM THE TESTS

1. Of the 300 control serums tested, twenty-nine, or 9.6 per cent., reacted positively.

2. Of the 315 serums from patients convalescing from influenzal pneumonia, the complement fixation reaction showed 161 positive reactions, 134 negative and twenty anticomplementary reactions. In other words, excluding the anticomplementary serums, 54.5 per cent. of convalescent influenzal pneumonia serums were positive.

3. Of the 161 positive serums, twenty (12.42 per cent.) were +, thirty-four (21.12 per cent.) were ++, forty-five (27.95 per cent.) were +++, and sixty-two (38.51 per cent) were ++++.

4. Some of the serums were positive one day after the patient had become convalescent. Other serums from patients convalescent forty-one days were positive. Most of the positive reactions were obtained with serums from individuals who were convalescent from three to five days.

5. Some serums that reacted positively three months ago still can fix complements.

TABLE 3.—TESTS IN WHICH WHITE BLOOD COUNTS WERE MADE

White Blood Count					
Above 10,000 per C.Mm.			Below 10,000 per C.Mm.		
Case	W. B. C.	Result	Case	W. B. C.	Result*
1	16,800	+++	12	7,400	Neg.
2	17,000	Neg.	17	2,800	Neg.
4	15,000	Neg.	20	7,400	+++
5	13,000	++++	24	4,400	++++
6	15,200	++	29	7,600	Neg.
7	11,200	Neg.	45	5,000	+++
9	12,600	Neg.	47	9,400	+++
14	20,000	++++	55	5,400	Neg.
15	14,800	+++	56	6,400	Neg.
16	13,000	Neg.	57	5,800	Neg.
27	10,400	++	76	6,200	+++
31	12,000	++++	78	8,400	Neg.
41	16,000	++++	87	6,600	Neg.
50	11,400	Neg.	90	7,600	Neg.
58	12,200	Neg.	92	4,200	+
63	14,600	+++	97	6,200	++
65	16,000	++	100	5,000	Neg.
66	10,000	++++	106	9,200	Neg.
72	15,200	++	111	4,000	Neg.
73	10,200	+++	287	6,600	Neg.
74	28,800	+++	292	5,600	Neg.
80	15,200	+	295	3,400	Neg.
103	15,000	+++	303	8,400	Neg.
115	16,000	+++	122	4,600	Neg.
124	10,200	++++	130	6,200	Neg.
154	12,400	Neg.	132	4,200	++
158	11,200	++	136	8,800	++
166	12,400	++++	142	7,800	Neg.
180	13,000	+	146	4,200	++
197	17,400	Neg.	152	5,200	Neg.
188	15,800	Neg.	162	5,400	Neg.
192	11,800	++	176	8,900	+
194	10 400	Neg.	178	7,000	+
200	13,000	Neg.	186	9,400	Neg.
201	12,400	++++	191	3,800	Neg.
208	12,400	Neg.	198	2,600	Neg.
229	12,500	++++	208	5,000	++++
234	15,400	Neg.	210	7,400	Neg.
238	14,600	++++	213	4,600	Neg.
248	11,400	Neg.	223	5,800	Neg.
250	18,200	++++	241	8,800	Neg.
258	12,600	++++	243	7,400	Neg.
260	18,200	+++	249	6,400	Neg.
272	18,000	++++	251	5,400	+
279	15,000	Neg.	261	9,200	Neg.
283	15,200	Neg.	274	4,400	+
288	17,000	Neg.	276	5,200	Neg.
291	10,600	Neg.	285	4,500	Neg.
299	25,000	++++	286	6,200	Neg.

* In this column + indicates hemolysis between 75 and 100 per cent.; ++, hemolysis between 50 and 75 per cent.; +++, hemolysis between 25 and 50 per cent.; Neg., complete hemolysis.

6. The fixation test on many serums made during the time that the patient was still acutely ill or just beginning convalescence were in many cases negative or slightly positive; but when these serums were kept in the refrigerator for from six days to three weeks, many gave strongly positive reactions.

7. White blood counts were not made on all influenzal pneumonia patients admitted, but of those patients on whom one was made and whose serums were tested by the complement fixation test, Table 3 has been made. This table shows that of the forty-nine patients who had a white count above 10,000, thirty (61.28 per cent.) gave a positive reaction; while of

the same number having a white count below 10,000 per cubic millimeter, only fifteen (30.61 per cent) produced a positive complement fixation test.

COMMENT

The complement binding factor of serum from influenzal pneumonia patients is probably a very weak one. At first, when two units of complement were used, many more negative results were obtained than when one unit was finally resorted to. Two units probably produced a marked excess of complement for that factor of the serum that causes complement fixation.

The results suggest strongly that the influenza bacillus forms specific antibodies that will fix complement when this organism is used as an antigen.

It is difficult to conclude definitely from these experiments alone whether only one or many strains of the influenza bacillus were active during the epidemic; but this can be stated: Polyvalent antigens did not give more positive results than a monovalent one. If many strains of this organism were present, then one could have expected more positive reactions in these experiments than were obtained from the use of an antigen made from one strain.

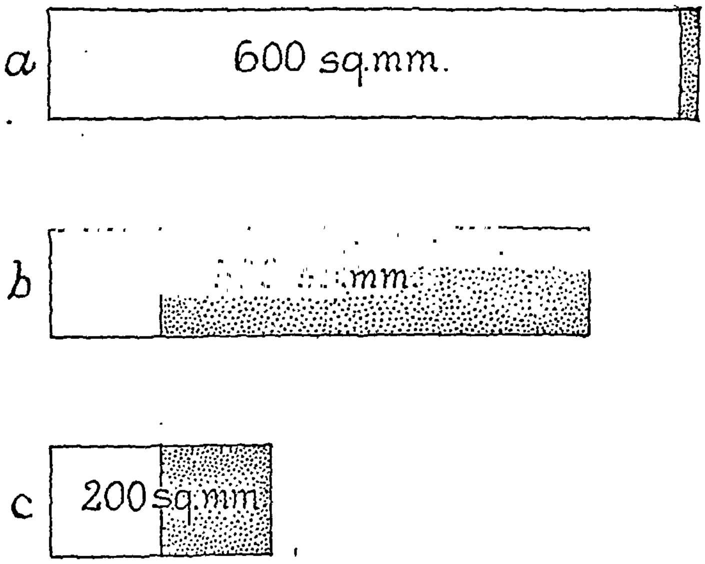

Fig. 1.—Relative importance of eye exposure to direct droplet spray: *a*, average total eye surface exposed; shaded area represents proportion of time not exposed, due to winking; *b*, average total mouth area exposed in talking; shaded area represents proportion of time not exposed, due to closure; *c*, average total area of cross-section of nares exposed; shaded area represents proportion of time not exposed, owing to protected position and expiration.

Serums that gave positive tests were also found more suitable for the serotherapy of influenzal pneumonia patients. It seems possible that persons who have *not* had influenzal pneumonia, but whose serum gives a positive reaction, might be useful as donors.

Since some of the reactions were inconstant, it must be concluded that the complement fixation test in influenzal pneumonia cannot yet be accepted as a diagnostic test; but it may be of some value together with other diagnostic methods in confirming the condition as having been present, at least in more than 50 per cent. of the cases.

This presence of complement fixation would indicate that the influenza bacillus plays an important part in the complicating pneumonia of influenza; but the results furnish no conclusive evidence of a primary etiologic rôle of the influenza bacillus.

SUMMARY

Experiments were made for the purpose of determining whether specific antibodies existed in the serum of patients who were convalescing from influenzal pneumonia.

The influenza bacillus found in more than 80 per cent. of the necropsies at this laboratory was used as an antigen.

The presence of antibodies was demonstrated by the complement fixation test, for it was found that out of the 300 control serums 9.6 per cent. gave a positive reaction, while of the 295 serums from convalescent influenzal pneumonia patients, 54.5 per cent. had antibodies that fixed complement.

THE TRANSMISSION OF INFECTION THROUGH THE EYE

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Recently the eye has received little or no attention as a factor in the transmission of acute respiratory infections. It has been disregarded in planning measures for the prevention of the spread of contagious diseases. This was especially true in the recent epidemic of influenza. No provision has been made in the ward routine of contagious hospitals for the protection of the eye of healthy persons in attendance on the unmasked sick. A brief consideration of the anatomic relations and physiologic facts of the lacrimatory-nasal mechanism, together with certain simple experiments illustrating its modus operandi, will convince one of the reality and importance of this portal of entry for pathogenic micro-organisms.

It has long been known that large numbers of various organisms, including the pneumococcus, streptococcus, influenza bacillus, and many others, may be recovered from the conjunctival sac, especially if there is obstruction to the overflow of tears. The conjunctival sac is never sterile. The source of contamination has been attributed largely to the impingement on the conjunctiva of the eyeball and the cornea of dust particles bearing micro-organisms. It is evident that droplets sprayed from the mouths of other persons during the act of talking, laughing, coughing, sneezing, etc., must be another frequent source.

It is now generally accepted that many contagious diseases are transmitted from one person to another through this direct droplet spray. Experimentally it has been shown by Doust and Lyon[1] that a person infected with a micro-organism (*B. prodigiosus*) may project this organism from his mouth during ordinary conversation or loud speech to a distance of 4 feet, and that during coughing, infected material from the mouth might be projected at least 10 feet. These observers, together with Haller and Colwell,[2] proved that this promiscuous spraying of the environment by an infected person could be entirely prevented by the wearing of a properly constructed gauze face mask. There is no experimental proof, however, that the reverse relation holds true, that is, that the noninfected healthy person is entirely protected from droplet spray by the wearing of such a mask. Droplets may not enter the nose or mouth when a face mask is worn, but the conjunctiva remains openly exposed. The relative importance of this portal of entry will become more evident if the conditions under which infection occurs are closely examined.

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[1] Doust, B. C., and Lyon, A. B.: Face Masks in Infections of the Respiratory Tract, J. A. M. A. **71**: 1216 (Oct. 12) 1918.

[2] Haller, D. A., and Colwell, R. C.: The Protective Qualities of the Gauze Face Mask, J. A. M. A. **71**: 1213 (Oct. 12) 1918.

THEORETICAL CONSIDERATIONS

Infections are most likely to be transmitted during the waking hours when a person has his widest range of activity and is coming into intimate association with numbers of other human beings. This is especially true in crowds, in which the range for droplet spray is short. Under these conditions the mouth is closed a large part of the time, in particular when another (perhaps infected) person is talking to (spraying) the noninfected healthy person who assumes the attitude of a listener. With the mouth closed, only the lips may receive the droplets; the bacteria dry there and perish, or perhaps they are swept into the mouth by movements of the tongue. Furthermore, when a healthy person is talking, air currents are created that are adverse to the entrance of droplets from the infected. The mouth surface exposed to droplet spray may consequently be represented as averaging about 100 sq. mm.

The nares at such times may not be directly exposed, owing to the protected anatomic position when the head is slightly inclined forward. With every expiration, adverse air currents are created. Hence, although a cross-section of the nares gives an area of about 200 sq. mm., this is available for direct droplet spray less than half of the time.

Contrasted to these areas, some 600 sq. mm. of eye surface area is constantly exposed to droplet spray during the waking hours, except for the very brief intervals during the act of winking, an act which is in itself of significance for the mechanism, as will be seen later. Certainly the chances of infecting the eye are fully as good as those of infecting the nose and mouth, if not better. These relations are brought out graphically in Figure 1.

THE LACRIMATORY-NASAL MECHANISM

The disposition of organisms reaching the conjunctival sac through droplet spray or dust particles may be easily demonstrated by the use of some harmless saprophyte, preferably a pigment producer, such as *B. prodigiosus*. This will be made clear by the subjoined experiments and Figure 2.

By the winking movement of the lids, the surface of the eye is swept at regular intervals, and the lacrimal secretion, which has no bactericidal action, together with the contained micro-organisms, is carried into the nose through the lacrimal duct (Fig. 2, 1).

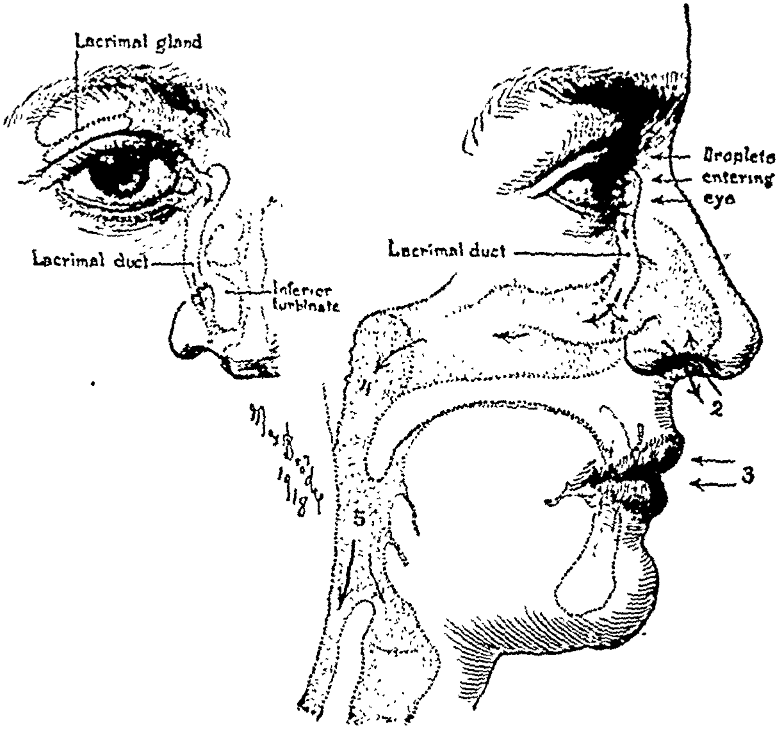

Fig. 2.—The lacrimatory-nasal mechanism for the mechanical disposition of organisms entering the upper respiratory tract.

EXPERIMENTS

EXPERIMENT 1.—*To show the appearance of organisms in the nose after introduction into the conjunctival sac.*

With a capillary pipet, 1 drop of suspension[3] was instilled into the eye near the inner canthus in each of five subjects. Just previous to the instillation, a straight swab was introduced into the nostril on the same side and smeared on the first quarter of an agar plate to demonstrate the absence of *B. prodigiosus* from the nasal fossa at the beginning of the experiment. In a similar manner a swab was introduced on *the same side at five, ten and fifteen minute intervals after* the instillation, and then smeared on agar plates. The plates were examined at twenty-four and forty-eight hours for colonies with characteristic pigmentation. The result of such an experiment is shown in Table 1.

It is evident from this experiment that *B. prodigiosus* instilled into the conjunctival sac is quickly carried into the nose, and that the organisms may there be recovered on a nasal swab within five minutes of the instillation. From the opening of the lacrimal duct (Fig. 2, 1) two courses are open. They may pass out through the anterior nares. This occurs when there is excessive secretion, or when the nose is "blown." Secondly, they may be carried backward into the nasopharynx (Fig. 2, 4). The topography of the nose favors the latter disposition, and this normally occurs in the absence of the factors mentioned above.

EXPERIMENT 2.—*To show appearance of organisms in the nasopharynx after introduction into the conjunctival sac.*

The details of the technic are the same as in Experiment 1. In addition, at the end of thirty minutes a long wire swab, slightly bent at the end, was introduced into the nasopharynx through the mouth and smeared on the agar plates. The result is shown in Table 2.

EXPERIMENT 3.—*To show appearance of organisms in the nasopharynx after introduction of diminishing doses into the conjunctival sac.*

The details of the technic are the same as in Experiment 2. In addition, the standard suspension used on the first subject was diluted 1:100 in the second, 1:1,000 in the third, and 1:10,000 in the fourth. A single drop from a capillary pipet was the dose instilled in each instance. The result is shown in Table 3.

Experiments 2 and 3 demonstrate that even very small doses of *B. prodigiosus* instilled into the conjunctival sac may be recovered from the nasopharynx from fifteen to thirty minutes later.

The disposition of organisms from this point (Fig. 2, 5) may follow one of three courses: 1. They may pass outward through the mouth with the sputum. 2. They may be carried into the larynx and reach the lower respiratory tract. 3. They may be carried downward into the esophagus with the swallowing movements, and perish in the intestinal canal or be excreted with the feces. The latter is probably the most frequent course.

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[3] The standard suspension of B. prodigiosus used in these experiments was prepared by growing a 2 inch streak on an agar slant for from eighteen to twenty-four hours at incubator temperature, and washing the organisms off the surface with 2 c.c. of salt solution.

TABLE 1.—INSTILLATION OF B. PRODIGIOSUS INTO CONJUNCTIVAL SAC; RECOVERY FROM THE NOSE

		Result of Nasal Swabs				
No.	Subject	0 Min.	5 Min.	10 Min.	15 Min.	30 Min.
1	M. K. F.	0	0	0	+	—
2	P.	0	0	0	—	+
3	B.	0	0	+	—	+
4	Br.	0	+	—	—	+
5	Pa.	0	+	+	+	+

Specimens of the stool were obtained from Subjects 7, 9 and 10, about twenty-four hours after they had submitted to Experiment 2. In one of the three (Subject 7), a viable *B. prodigiosus* was recovered. Success might have attended the other attempts had cultures been taken of successive passages.

The disposition outlined above holds true for the bulk of organisms introduced into the conjunctival sac. Larger or smaller numbers are left along the course, particularly on the nasal mucous membrane and in the adenoid tissue of the nasopharynx. If the biology of the organism is unsuited to the environment, its growth is inhibited or it is perhaps destroyed by neutralizing substances in the nose. If the biology of the organism is such that the environment is suitable for reproduction, growth ensues with resulting stimulation of protective mechanisms and manifestations of infection of the respiratory tract.

TABIE 2.—INSTILLATION OF B. PRODIGIOSUS INTO CONJUNCTIVAL SAC; RECOVERY FROM THE NOSE AND THE NASOPHARYNX

		Result of Nasal Swab				Result of Nasopharyngeal Swab	
No.	Subject	0 Min.	5 Min.	10 Min.	15 Min.	15 Min.	30 Min.
6	S.	0	+	+	+	+	0
7	W.	0	+	0	+	+	+
8	V. G.	0	0	+	+	+	+
9	D.	0	+	+	+	+	+
10	T.	0	+	+	+	+	0

LIMITATIONS OF THE GAUZE FACE MASK

From the foregoing it is clear that the eyes present a relatively large surface for the reception of droplet spray, and that organisms introduced into the conjunctival sac quickly reach the nose and throat. It follows that the gauze face mask fails completely to close this portal of entry. This fact may be demonstrated experimentally:

Experiment 4.—*To demonstrate infection of the upper respiratory tract by droplet spray while a gauze face mask is being worn.*

The standard suspension of organisms was diluted 1:20 with salt solution so that it was slightly but definitely turbid. The suspension was placed in an atomizer connected with a compressed air tank. After a swab had been taken to show the absence of *B. prodigiosus* from the nose of the subject at the beginning of the experiment, the nose and mouth were covered with a gauze mask. All subjects, except 20 and 21, used a mask consisting of eight thicknesses of gauze, of 28 by 24 mesh. Subjects 20 and 21 used a three layer butter-cloth mask constructed according to the specifications of Doust and Lyon.[1] Besides wearing the mask, the first five subjects were instructed to hold their hands over their mouths, closing off the nostrils and holding the breath during exposure. The atomizer was directed toward the faces of the subjects from a distance of from 3 to 4 feet, and the spray applied twice—each application lasting about a second—imitating a couple of coughs. With the last four subjects, particular care was taken to exclude the possibility of organisms gaining entrance through inhalation. The swabbing was done in one room, and the exposure to spray in another. The subjects, having previously been masked, were brought into a room where they were exposed, and then immediately withdrew to the room where the swabs were taken. The mask was worn during the whole twenty minutes of observation except when the swabs were being taken.

The result is shown in Table 4.

The result is unequivocal. It may be repeated by any one for his own satisfaction. The possibility of infecting the upper respiratory tract through the eye by direct droplet spray, even when a properly constructed mask is worn, is an easily demonstrated fact.

TABLE 3.—INSTILLATION OF B. PRODIGIOSUS INTO CONJUNCTIVAL SAC; *DECREASING DOSAGE; RECOVERY FROM* NOSE AND NASOPHARYNX

		Mil. Organisms per C.c. in Suspension Used	Recovery from Nose			Recovery from Nasopharynx	
No.	Subject		0 Min.	5 Min.	10 Min.	15 Min.	30 Min.
11	C.	450	0	+	+	+	0
12	N.	4.5	0	+	+	0	0
13	W.	0.45	0	+	+	+	—
14	H.	0.045	0	0	0	0	—

COMMENT

The frequency with which respiratory infections—for example, acute coryza, measles and influenza—begin with a conjunctivitis suggests that this entrance for the causative organism may not be uncommon. It is realized that the conjunctivitis in certain cases is simply a suffusion and part of the general mucous membrane response. In other cases the priority and prominence of this symptom indicates rather a primary relationship with the disease. Certainly the evidence is sufficient to warrant serious consideration of this portal of entry in planning measures for the prevention of the spread of contagion. The obvious means of protection is the wearing of a large lens or pair of goggles in addition to the gauze mask by those who are within range of droplet spray from heavily infected individuals. In this connection it is interesting to note that during the great epidemics of plague that have from time to time swept over the Old World, masking of the whole face, eyes included, has been wonderfully effective.

TABLE 4.—*DROPLET SPRAY OF B. PRODIGIOSUS; DISTANCE 3* TO 4 FEET; NOSE AND MOUTH PROTECTED BY GAUZE MASK; EYES UNPROTECTED; RECOVERY OF ORGANISM FROM NOSE AND NASOPHARYNX

		Nose				Nasopharynx	
No.	Subject	0 Min.	5 Min.	10 Min.	15 Min.	15 Min.	20 Min.
15	L.	0	+	+	+	—	+
16	Bo.	0	+	+	+	—	0
17	Y.	0	+	+	+	—	0
18	Sak.	0	+	+	+	—	+
19	Na.	0	+	+	+	—	+
20	L.	0	+	+	+	—	+
21	G.	0	+	+	+	—	+
22	Pe.	0	+	+	+	0	+
23	T.	0	+	0	0	0	0
24	Hu.	0	+	+	+	0	0
25	Tu.	0	0	0	+	0	0

The gauze mask is efficient in preventing the infected person from spraying his environment, and should be used for this purpose when possible. It is impracticable to mask very sick patients, especially those with respiratory difficulty. These patients are prolific distributors of droplet spray. Physicians and attendants, even though properly masked, cannot come within close range of such persons without the danger of infection through the eye. Public health administrators should bear in mind the limitations to the protective value of the gauze mask when worn by the noninfected. The pathologist at the necropsy table should remember that infectious material splashed into the eyes is just as potent as if it had been directly implanted on the mucous membrane of the nasopharynx.

CONCLUSIONS

1. The eyes offer a relatively large surface area for the reception of droplets sprayed from the mouths of other persons.
2. An organism introduced into the conjunctival sac may be recovered from the nose in five minutes, from the throat in fifteen minutes, and from the stool in twenty-four hours.
3. The upper respiratory tract of a person wearing a properly constructed mask may be infected by exposing the eye briefly to direct droplet spray.
4. This portal of entry is of importance in the transmission of acute respiratory infections.

HYSTERICAL APHONIA ASSOCIATED WITH LATENT SYPHILIS

REPORT OF CASE

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A well developed man, aged 36, 5 feet 11 inches in height, whose habits were good, who drank beer occasionally, smoked moderately and was a telegrapher, enlisted in the Army, Jan. 10, 1918, at Fort Thomas, Ky. While on a furlough at home, he developed a cold and an eruption which a civilian physician diagnosed as measles. Hoarseness accompanied by a cough first appeared at this time and progressively increased until January 18, when the patient completely lost his voice. He was sent to Fort Wood, N. Y., for treatment. The post surgeon there referred him to the Manhattan Ear and Throat Hospital, where he received active treatment from February 20 to March 30. His condition apparently remained the same; several Wassermann tests had been negative, and no definite diagnosis could be made. The soldier was then transferred to the Canal Zone in the belief that a climatic change might affect the aphonia, and reported there for duty, April 15, where he was shortly afterward admitted to the Ancon Hospital.

July 6, a blood test gave a + + Wassermann reaction for the first time; July 11, the spinal fluid gave a negative Wassermann reaction; July 12, a blood test was again + +. With a history of a sore on the penis in 1906 and the presence of a scar there, together with a + + Wassermann reaction, it was decided to institute specific treatment. He therefore received five arsphenamin injections intravenously, six mercuric salicylate injections intramuscularly, and potassium iodid by mouth between July 23 and August 19. August 8 and 19, the Wassermann tests were reported negative with no improvement in the aphonia.

September 30, the patient was transferred to the Walter Reed General Hospital for final disposition. Two Wassermann tests were taken, one, October 2, and the other, October 7; the former was negative, the latter ±. A neurologic examination revealed slightly exaggerated knee jerks, a marked Romberg sign, but no Babinski reflex or ankle clonus. The laryngologic examination revealed no pathologic condition of the vocal cords; the tonsils were in a state of chronic hypertrophy; otherwise the patient was normal. In view of the foregoing symptoms, a lumbar puncture was performed. October 17; the spinal fluid was clear and under normal pressure. All the tests, namely, the Wassermann, globulin, colloidal gold and cell count, were negative. Although the biologic tests were normal, still we felt justified in administering further specific treatment in the expectation that the therapeutic test would throw further light in clearing up the diagnosis.

Accordingly the patient received four intravenous injections of arsphenamin, 0.5 gm. each, four injections of mercuric salicylate intramuscularly at weekly intervals, and potassium iodid by mouth, from October 22 to November 12. The Wassermann test, November 4, was still ± with no change in the patient's aphonia and the Romberg sign.

After much deliberation, it was decided to examine the larynx under ether anesthesia. December 12, the patient was anesthetized and the larynx examined by the direct method. Nothing abnormal was found to account for the aphonia; only a slight congestion of the false cords was noted. When reacting from the anesthetic, the patient began to speak in normal pitch and his voice remained so up to December 31, when it was decided to return him to duty. The Romberg sign was still present, which we believe to be purely functional. Before the administration of the anesthetic the patient was told that an operation would be performed in his throat, after which his voice would be restored. After the patient reacted, he complained of some soreness which he thought was due to the operation. The passage of the laryngoscope probably set up enough irritation to account for the complaint.

DIFFERENTIAL DIAGNOSIS

From the standpoint of differential diagnosis, the following conditions had to be considered:

1. *Acute and Chronic Laryngitis.*—This condition, with the symptoms starting as an acute laryngitis and going into a chronic condition, was thought not probable, as no improvement followed local treatment.

2. *Tuberculosis of the Larynx.*—This condition following an attack of measles had to be considered. The symptoms appeared suddenly, there was no pain, and there was an absence of laryngeal and pulmonary signs, all of which eliminated this diagnosis.

3. *New Growths.*—There was no local or constitutional evidence of these.

4. *Interstitial Neuritis of the Recurrent Laryngeal Nerve Caused by Syphilis.*—Such a condition causing paresis or paralysis would have responded quickly under specific treatment; there was no improvement in this case.

5. *Final Diagnosis of Hysterical Aphonia.*—This was made because of restoration of voice after the administration of an anesthetic to an individual who probably had latent syphilis.

Cost of Preventable Illness.—The cost of sickness in the state of Illinois for the year ended July 1, 1918, reached the total of $154,881,685, according to a statement issued, January 16, by Dr. C. St. Clair Drake, director of the state department of public health. In the order of their annual cost to the state through sickness and death the several diseases embraced in the study rank as follows: tuberculosis, $114,905,500; pneumonia, $30,909,360; typhoid fever, $3,006,900; malaria, $2,660,860; diphtheria, $1,156,625; whooping cough, $735,220; smallpox, $675,600; infantile paralysis, $461,600; measles, $456,020; epidemic spinal meningitis, $425,700; scarlet fever, $388,300.

TREATMENT OF THE PNEUMONIC DISTURBANCE COMPLICATING INFLUENZA

THE TRANSFUSION OF CITRATED IMMUNE BLOOD

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An emergency hospital was established to care for the employees of an industrial plant during the recent influenza epidemic, and in all, 285 cases were cared for in the unit.[1] Unfortunately, the majority of the patients were of the lower type, with environments of poor home and personal hygiene, physically derelict. Many had no care, and suffered even neglect, before admittance. We were thus confronted with a great number of neglected, seriously ill, not a few of whom were moribund. It was a most discouraging circumstance to stand by and observe a death rate of more than 42.9 per cent. in the so-called pneumonias with the various treatments used. We were stimulated to attempt the practical application of theory, and are gratified over a result far beyond our fondest expectations.

While much has been done on the etiology, especially from a bacteriologic standpoint, even to the extent of producing a questionably similar disease in monkeys, by the introduction of a coccobacillus (Plasencia[2] of Havana), we are at present less justified in ascribing influenza to any one particular identified micro-organism than we are in ascribing scarlet fever to a streptococcus infection. However, we must all concede that we are dealing with an extremely virulent intoxicant of uncertain origin.

The clinical course indicates that the intoxicant acts in the main on the central nervous system, as is manifested by: (*a*) prostration with an apathetic state; (*b*) disturbed heat mechanism; (*c*) a central type of gastro-intestinal disturbance; (*d*) peripheral sensory nerve disturbance; (*e*) vasomotor disturbance without evidence of myocardial insufficiency, and (*f*) depression of the respiratory center.

Meyer and Gottlieb[3] thus write concerning the relation of circulatory failure to vasomotor paresis:

> Circulatory failure resulting from vasoparesis occurs in advanced stages in many toxic conditions where altered excitability of the medulla obtains. It was formerly considered due to a cardiac weakness. However, Romberg and his co-workers have correctly insisted that in the course of infectious diseases, disturbances of the circulation develop which closely resemble the picture seen in vasomotor paresis. Using pneumococci and diphtheria as well as pyocyaneus cultures, they were able to show experimentally that at any rate during a long period, during which the blood pressure continued to fall, this was chiefly due to a vasoparesis and not to any direct harmful action on the heart (Romberg, Passler, Bruhns, Müller, Passler and Rolly), and the same holds true in experimentally produced septic peritonitis (Romberg and Heinecke).

That this phenomenon of vasoparesis is early established in this disease is clinically seen by the slow, low tension pulse, early congestive cyanosis, hyperemia of the viscera, especially those rich in vascular supply, epistaxis nasae and gastro-intestinalis, with a concomitant good status of the myocardium.

Associated with this vasoparesis, there undoubtedly coexists a circulating inflammatory intoxicant, as is well shown by a destructive type of leukopenia (a high Arneth's scale). These factors co-working explain the almost universal finding of a hemorrhagic transudate into the richly vascular tissues, and such a status, that is, one in which lowered resistant powers must obtain, predisposes toward secondary infection by well known organisms, such as the streptococcus, pneumococcus and influenza bacillus, especially when the entrance is through simple channels, such as the upper and lower respiratory passages.

In cases progressing to a fatal termination, the clearness and certainty of this interpretation is well shown. The vasoparesis, the blood destruction (leukopenia and lessened coagulability) progress to extreme degree, while the myocardium is disturbed only to a minor degree, and stimulation of the latter may produce in reality an active diffuse pulmonary hemorrhage. The patient expires from a drowning process and respiratory failure, unless there previously existed a severe acute or chronic myocardial condition which might be the cause of death, or a contributory cause.

That all cases of influenza demonstrate the foregoing phenomena to a certain degree is well established. That some cases progress a bit farther to a so-called pneumonia from which the patients recover without treatment is also well established. From this, it is fair to assume that recovery depends on the presence of natural protective elements in the circulation and tissues.

TABLE 1.—ACTIVITIES OF THE BLOOD

Blood	1. Physiologic activity	1. Stimulating normal blood production 2. Control of capillary tree—(*a*) Caliber; (*b*) Rate of flow; (*c*) Integrity of the endothelium 3. Coagulability
	2. Immune activity.	1. Active—Leukocytosis, phagocytosis, chematosis, increased complement, etc. 2. Passive—(1) Normal immune content; (2) convalescent immune content
	3. Mechanical activity	1. Dilution 2. Neutralization 3. Elimination

From the foregoing facts and theory, it is evident that a treatment to be logical must be directed in such a way as to (*a*) neutralize or render the intoxicant inert, (*b*) correct the vasomotor paresis, and (*c*) prevent the blood destruction with its destructive leukopenia and lessened coagulability. It is theoretically established that an immunity either active or passive is corrective to such circumstance.

That clinical application of this phase of theory has produced remarkable results, let alone affirmation, is well shown in the work on immune serum by McGuire and Redden[4] and others. However, the experimental work of Herst, S. Solis-Cohen and M. Solis-Cohen[5] gives evidence of bactericidal properties in the uncoagulated blood of immune species such as pigeons, which property ceases on defibrinization of the blood, and the defibrinated blood often acts as a good culture medium for that particular micro-organism. This explains satisfactorily the failure of immune serum in some cases. The introduction of total immune blood either citrated or by direct transfusion will present all of the advantages of serum and theoretically many added factors as seen in the scheme given in Table 1.

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[1] Ross, C. W., and Hund, E. J.: Transfusion in the Desperate Pneumonias Complicating Influenza, J. A. M. A. **71**: 1992 (Dec. 14) 1918.

[2] Cuba Letter, J. A. M. A. **71**: 1928 (Dec. 7) 1918.

[3] Meyer, H. H., and Gottlieb, R.: Pharmacology, Clinical and Experimental, Philadelphia, J. B. Lippincott Company, 1914, p. 309.

[4] McGuire, L. W., and Redden, W. R.: Treatment of Influenzal Pneumonia by the Use of Convalescent Human Serum, J. A. M. A. **71**: 1311 (Oct. 19) 1918.

[5] Herst, G. D.; Solis-Cohen, Solomon, and Solis-Cohen, Meyer: J. Immunol. **3**: 61 (July) 1918.

INDICATIONS FOR USE

It has been our experience in the observation of the pneumonic complications in this unit and elsewhere that a process once started becomes of a fulminant and rapidly progressive nature. If this circumstance is permitted and the reserve powers are exhausted, treatment of any type is of no avail. The activity should and must be brought into play before the reserve is depleted to any great degree. It is of no consequence to err on the too early application. Briefly, when cyanosis develops and becomes persistent; when toxemia is well established, as is noted in nervous manifestations, destructive type of leukopenia and diminished urinary chlorids; when the pulse diminishes in tension and the first pulmonary signs (which very often come late) are elicited, then the time for transfusion has arrived. Temperature is a faulty guide, especially a drop, for this does not necessarily mean an improvement, and often means a failure of reaction. A slightly elevated temperature, and as we have seen in some cases, a subnormal temperature with marked nervous manifestations, is an ominous sign.

TABLE 2.—RESULTS

	Transfusion	Symptomatic
Cases treated	28	21
Average days ill before admitted	4	3
Average days of transfusion	8	..
Average temperature before transfusion	101.8	103
Average temperature after transfusion	101.2	..
Average white blood count before transfusion	5,020	4,800
Average white blood count after transfusion	7,450	.....
Average white blood count fourth day after transfusion	11,790	.....
Average days until temperature normal	9.5	15
Average days ill	19	20
Average days in hospital	15	17
Recoveries	22	12
Deaths	6, or 21.4%	9, or 42.8%

One transfusion is often not sufficient. If it is found that the anticipated effect of the transfusion is not obtained, we repeat in from twelve to twenty-four hours and again after that time if necessary. The anticipated effects are a walling off or prevention of further progress of the pulmonary disturbance, the lessening of the toxic state, a better circulatory and respiratory tonus, increased leukocyte count, and a suitable temperature. Careful technic, especially in preliminary tests, makes repetition a safe procedure.

Table 2 includes our experimental cases, that is, patients who were moribund at the time of transfusion, and a better understanding and more fairness to statistics will be obtained by the supplementary information obtained from close clinical and technical observation. The features that stand out prominently are: (*a*) the temperature; (*b*) the blood count, and (*c*) the mortality.

The average temperature before transfusion is low because a few of the early cases were of the nonresistant type, with low and even subnormal temperature and muttering delirium at the time of transfusion. The important feature is that the average time for a normal temperature was 9.5 days of illness or 1.5 days after transfusion, while in the symptomatically treated case the normal line was reached about the fifteenth day. As seen below, several of the cases presented the typical curve of crisis.

The blood count is of interest. The desperate cases presented a uniformly low white blood count of from 1,800 to 3,000 and a tendency to lower as the disease progressed. In a few of the cases transfused in a terminal condition no improvement was obtained, but in the responding cases a characteristic curve was obtained, namely, a persistent rise in white blood count, in some cases up to 24,000, until the process was controlled, and then a drop to normal. The cases treated symptomatically presented a white blood count which remained stationary usually between 3,500 and 6,000, a fact which may explain the long convalescence, frequent complications and sequelae. Further, Arneth's index proved to be very high at first, and returned to an approximate normal shortly after transfusion. The mortality rate of 42.8 per cent. for the symptomatically treated cases and 21.4 per cent. for the transfused cases gives a 21.4 per cent. improvement. This would be even better had we excluded our first experimental cases which were beyond help at time of transfusion.

The clinical observation presents a walling off of the process, a more rapid resolution, an earlier relief of toxic symptoms, and a shorter convalescence. Complications and sequelae were practically nil.

TECHNIC

It is of great import as a matter of safety to match carefully the blood of donor and recipient. It is further of great value to perform not alone a Wassermann reaction but a close clinical observation for syphilis. Poorly matched bloods may not alone prove valueless as far as therapeusis is concerned, but may add a disturbing and even destructive process which may prove fatal. Theoretically, incompatibilities in this disease should be of frequent occurrence, and there was much clinical evidence to substantiate this.

TABLE 3.—TESTS OF BLOOD FOR ISOHEMOLYSINS AND ISOHEMAGGLUTININS

Number of tests made	105
Number of incompatibilities	37
Incompatibility due to presence of isohemolysins:	
Serum of donor	8
Serum of recipient	21
Incompatibility due to presence of isohemagglutinins:	
Serum of donor	0
Serum of recipient	7
Incompatibility due to presence of both isohemolysins and isohemagglutinins:	
Serum of donor	0
Serum of recipient	3
Mutual incompatibility:	
Hemolysis by serum of both donor and recipient	2

The controls remained normal in all of the 105 tests.

In Table 3 is given a complete summary of the results noted in testing the blood for isohemolysins and isohemagglutinins for the purpose of giving blood transfusions to patients suffering from pneumonic complications of influenza. The donors in all cases were chosen from a number of persons who had recovered from the disease and gave negative Wassermann tests.

The technic employed was as set forth by Kolmar,[6] and was briefly as follows:

> Specimens of blood and blood cells are thus obtained from both the prospective donor and the recipient: Four or five c.c. of blood are drawn from a prominent vein with a glass syringe, and of this quantity 0.5 c.c. is diluted with 4 c.c. of 1 per cent.

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6. Kolmer, J. A.: A Practical Text-Book of Infection, Immunity and Specific Therapy, Ed. 2, Philadelphia, W. B. Saunders Company, 1918.

sodium citrate in 0.98 per cent. sodium chlorid solution; the remainder is allowed to clot. The blood cells are thrown down in the citrate solution with the aid of a centrifuge and washed twice with 0.98 per cent. sodium chlorid solution; they are then suspended in 9 parts of 0.98 per cent. sodium chlorid solution—this is the dilution used in the test. The blood serum is then separated from the blood clot with the aid of a centrifuge and removed to a clean, dry test tube.

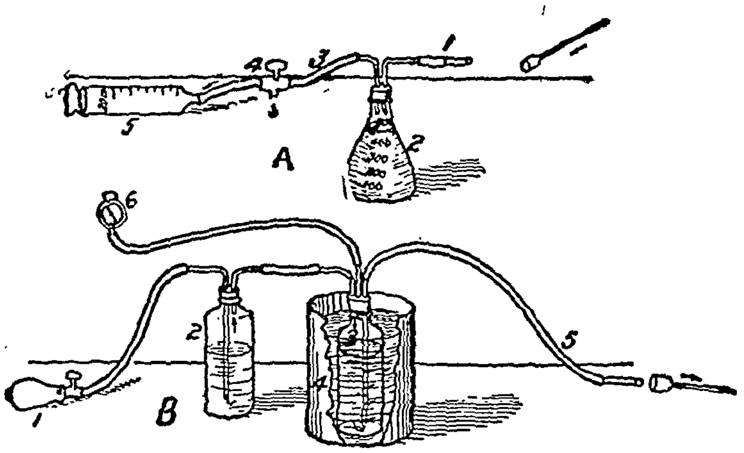

Fig. 1.—Apparatus for transfusion: *A*, receiving apparatus: 1, receiving tube with very short rubber connection (all paraffined); 2, 500 c.c. Ehrlenmeyer flask (paraffined); 3, suction tube for partially exhausting air from flask; 4, two-way stopcock; 5, 20 c.c. syringe; *B*, apparatus for giving blood to recipient: 1, bulb and valve (from sphygmomanometer); 2, wash bottle (containing mercuric chlorid, 1:500); 3, delivery bottle for citrated blood; 4, vessel containing water at temperature of 43 C.; 5, delivery tube; 6, pressure gage (to measure rate of flow and pressure).

The serum and cell suspensions having been prepared as directed with each specimen of blood, the following mixtures are then placed in test tubes (preferably small ones of 15 by 75 mm. size):

Tube 1: Donor cell suspension, 1 drop; recipient serum, 4 drops.
Tube 2: Recipient cell suspension, 1 drop; donor serum, 4 drops.
Tube 3: Donor cell suspension, 1 drop; donor serum, 4 drops.
Tube 4: Recipient cell suspension, 1 drop; recipient serum, 4 drops.
Tube 5: Donor cell suspension, 1 drop; sodium chlorid solution, 0.98 per cent., 4 drops.
Tube 6: Recipient cell suspension, 1 drop; sodium chlorid solution, 0.98 per cent., 4 drops.

Then 1 c.c. of sodium chlorid solution, 0.98 per cent., is added to each tube with a graduated pipet and the tubes are placed in an incubator at 37 C. for two hours or in a water bath at the same temperature for one hour. Hemolysis or agglutination are easily perceived on macroscopic examination. If there is doubt regarding hemolysis, the tubes may be centrifuged. (Tubes 3 and 4 are controls on serum of both donor and recipient, and Tubes 5 and 6 are controls on the erythrocytes and sodium chlorid solution.)

These mixtures should be set up within twenty-four hours after obtaining specimens to obviate danger of deterioration of the native complement. The tubes must be well shaken before being subjected to incubation.

Our work in this unit was done in wards of a supply depot and in tents. In such an emergency, when a surgically clean place is not available, it is essential to avoid air contamination as much as possible. Further, many of our patients were delirious, and therefore direct transfusion was impossible. We chose, by necessity, the citrate method and devised a closed apparatus for giving and receiving blood. Our experience has demonstrated that this procedure is exceeding simple, devoid of danger and readily applicable to bedside conditions.

The receiving apparatus (Fig. 1 *A*) is self explanatory. If a platinum needle of 17 or larger caliber is used, if the flask is well paraffined, if the lead tube and connections are well coated internally with sterile, pure petrolatum, and if the citrate solution in the container is of proper temperature and is shaken gently while receiving the blood, no difficulties should be encountered. The usual surgical technic is employed in controlling the venous supply and the taking of the blood. Care should be used not to cause sufficient vacuum to collapse the vein.

The giving apparatus (Fig. 1 *B*) is also self explanatory. Care should be taken to keep the citrated blood at body temperature, which can be done by keeping the container in a water bath and making the delivery tube as short as possible. The pressure gage is of great value. This will give an index as to rate, volume and pressure of flow, and also any obstruction in the apparatus. It is advisable to work between 40 and 80 mm. of mercury pressure.

The dose of blood varies according to the amount the patient can tolerate. However, owing to the extreme relaxation of the blood vessels and fair state of the myocardium, large amounts may be used in the majority of cases without adding additional stress to the circulatory system. We use from 250 to 500 c.c. of blood at a time, preferably the larger amount. It is advisable to fortify with a hypodermic injection of 1-50 grain of digitalein one-half hour before transfusion. Blood pressure and pulse readings should be performed while the transfusion is in progress; these will give an index as to the amount tolerated by the patient.

The strength of citrate solution used varies with the dose of blood. The larger the dose of blood, the smaller should be the volume and greater the strength of the citrate solution in order not to introduce too large an amount of fluid. A 1 per cent. solution of sodium citrate in physiologic sodium chlorid solution will citrate an equal volume of blood. A 2 per cent. solution in physiologic sodium chlorid solution will citrate two volumes of blood, etc. We use a 1 per cent. solution for a dose up to 150 c.c.; a 2 per cent. for a dose up to 300 c.c.; a 3 per cent. for a dose up to 400 c.c., and a 4 per cent. for a dose of 500 c.c. of blood.

The frequent reaction of a slight chill followed by a profuse perspiration and drop in temperature should be treated symptomatically or merely by support; medication is not as a rule indicated. Should anaphylaxis develop, it is well to use atropin. We always have a hypodermic dose of 1-50 grain of atropin sulphate at hand during transfusion to meet such a development. If the transfusion is given too rapidly, a feeling of constriction in the chest and a slight respiratory distress occur, which cease if the rate of transfusion is decreased. With careful technic, no shock should be encountered.

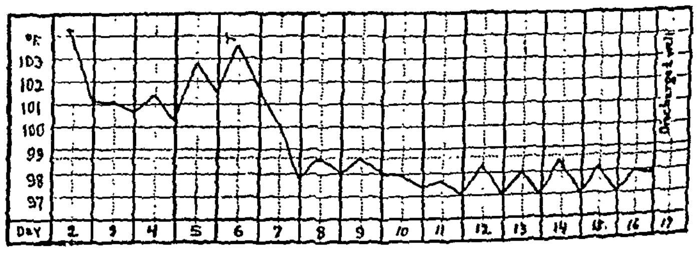

Fig. 2.—Clinical chart, Case 3.

REPORT OF CASES

The accompanying charts and brief histories are of the cases in which transfusion was performed in one of the units. The charts are graphic and note the highest and lowest temperatures, pulse and respirations in twenty-four hours.

Case 1.—C. M. C., a well developed boy of 16, with typical influenza, entered the first day. The white blood count was 2,600. Bronchopneumonia developed the fourth day, and transfusion was performed the fifth day. There was an immediate drop of temperature to an uneventful recovery. The white blood count was from 4,100 to 9,600. The patient was discharged on the twelfth day.

Case 2.—G. I. C., aged 24, with a previous tuberculous history and a typical tuberculous appearance, entered on the sixth day of illness, markedly delirious and cyanotic, with an axillary temperature of 105.4. Physical examination revealed a diffuse bronchopneumonic process. The white blood count was very low, 3,000. The urine contained albumin, and chlorids were in diminished amounts. The blood tension was low and the pulse irregular. A high grade of acidosis was present. Magnesium sulphate was given intravenously, but the clinical picture changed rapidly to the nonresistant form with progressive asthenia, and the patient had a low, muttering delirium. Transfusion was performed on the ninth day. An immediate improvement followed, and the delirium cleared in six hours. The temperature dropped to normal in twenty-four hours and remained so. The patient was discharged on the sixteenth day in a very good state of convalescence.

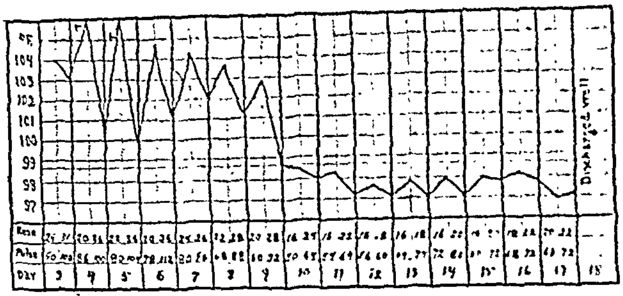

Fig. 3.—Clinical chart, Case 4.

Case 3.—R. J. C., aged 27, in an apparently fair physical condition, entered the hospital, November 7, on the second day of his illness, with typical influenza. The temperature was 104.2. He was given sodium salicylate intravenously with resultant drop in temperature and clearing of the usual influenza symptoms. On the fourth day, cyanosis and pulmonary changes became evident. The temperature rose and clinical bronchopneumonia was well defined. The blood count remained between 2,500 and 3,000. A transfusion was performed on the sixth day, and the temperature dropped to subnormal in twenty-four hours, and remained slightly subnormal until the patient was discharged, in perfect convalescence, on the sixteenth day. The white blood count rose to 5,000.

Case 4.—J. L., a slender boy, aged 17, entered the hospital on the third day of illness with typical influenza symptoms. The white cell count was 9,400. In twelve hours he developed more of a lobar type of pneumonia with faulty consolidation, marked intoxication and delirium. At the time of transfusion the temperature was 106; a twelve-hour drop to 100 and an increase of white cells to 12,750 were noted. A rise in temperature suggested another transfusion, which was followed by a slight reactionary rise to 106. The physical signs here were altered to a fixation of the process; the leukocyte count was 17,051. There was a crisis on the ninth day. An uneventful recovery followed, excepting a slight hematogenous icterus. The blood count returned to approximately normal after the crisis.

Case 5.—W. M. A., a well developed man, aged 39, entered the hospital with typical influenza on the third day. He was given sodium salicylate intravenously without much apparent benefit. Increased cyanosis with acidosis and a progressive bronchopneumonic process indicated a transfusion, which was performed on the eighth day. There was a slight secondary reactionary rise next day, followed by an uneventful recovery. The patient was discharged on the seventeenth day.

Case 6.—H. S., aged 19, anemic, slender and underdeveloped, entered with symptoms of influenza, minus the temperature, on the third day of illness. He was given quinin intravenously on the fourth day with no increase in white blood cells (3,600). Pneumonia developed on the fifth day. Transfusion was performed on the sixth day with a marked reaction. The temperature was 104.4 and rose to 107 in the axilla one hour after transfusion, accompanied by a very violent chill. After reaction, the temperature dropped by lysis. An uneventful convalescence followed. There was a slight secondary rise on the eleventh day when the patient attempted to get out of bed.

Case 7.—R. McC., aged 28, of poor physical status, entered the hospital on the sixth day of illness, actively delirious, dyspneic, cyanotic, and with an axillary temperature of 104.2 Transfusion was performed on the seventh day of illness. The delirium and the general condition cleared somewhat. This patient was tremendously toxic; urinary chlorids were absent, and the blood count was 4,600. On account of the toxicity, an intravenous injection of sodium bicarbonate and sodium chlorid was given. There was some shock with this, as is shown by the rise in temperature, but the toxic state rapidly cleared. Resolution and an uneventful convalescence followed. The white blood count rose from 4,600 to 10,750 after transfusion. The patient was discharged on the twenty-first day.

Case 8.—F. D. U., a boy of slender build and of poor physical condition, aged about 17, entered the hospital on the first day of illness with typical influenza. The white cell count was 5,400. Sodium salicylate was given without effect. On the fourth day he was given magnesium sulphate intravenously. The white cell count was 3,250. The patient got out of bed on the morning of the sixth day. He developed a chill and a rise in temperature with pneumonia of the lobar type. Transfusion was performed on the eighth day with a temperature of 104; the patient was very toxic and cyanotic. There was difficulty in obtaining a donor, and the seriousness of the patient's condition made us use a donor whose red cells were found incompatible. The patient developed marked anaphylaxis, which was controlled by atropin. (The anaphylaxis had been anticipated.) The patient then developed a hematogenous jaundice. There was a clearing up of the physical state and a progressive rise in white blood cells to 22,000. He developed a secondary rash during convalescence. The period of convalescence was prolonged by gastro-enteritis. The patient was discharged well on the thirty-second day.

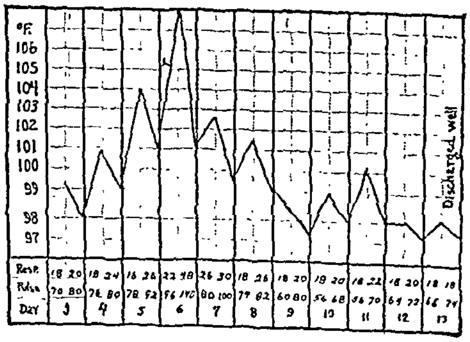

Fig. 4.—Clinical chart, Case 6.

Case 9.—T. W. R., aged 37, a man of the dissipated type, entered the hospital on the third day of illness with typical influenza symptoms. He was markedly toxic, with albuminuria. The temperature was 103.2. The white cell count was 4,100. He developed bronchopneumonia with marked cyanosis and extreme delirium on the fifth day. Transfusion was performed on the sixth day without apparent effect, and again on the seventh day with decline by lysis and a clearing up of physical signs. The patient was discharged on the fourteenth day in perfect convalescence. The white cell count was 7,400. There was a report of pleurisy (?) after discharge from the hospital.

Case 10.—A. A. T., aged 44, of heavy build and good physical condition, entered the hospital on the first day of illness with typical influenza. He was given sodium salicylate intravenously with no apparent improvement. The white blood count was 6,850. Pneumonia developed on the third day, and transfusion was performed on the fourth day. The temperature dropped by lysis, and the symptoms cleared up on the seventh day. The patient was of marked nervous type with delirium. He was discharged convalescent on the twelfth day.

Case 11.—C. T., aged 28, well developed, entered the hospital on the third day of illness with typical influenza symptoms. The white blood count was 2,150. The patient became extremely toxic and cyanotic with definite pneumonia on the sixth day. Transfusion was performed on the seventh day, resulting in a characteristic drop in temperature and a clearing up of the clinical picture. The white blood count was 7,700. The patient was discharged early on account of closure of the hospital. A recent report denotes perfect convalescence.

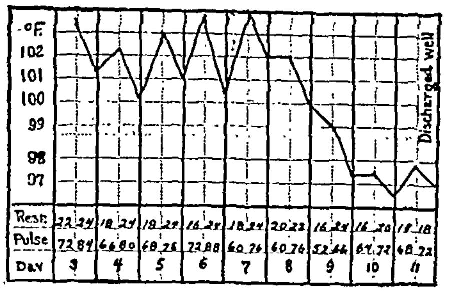

Fig. 5.—Clinical chart, Case 11.

Case 12.—L. F. W., aged 33, obese, entered the hospital with typical pneumonia. He was cyanotic and extremely toxic. The temperature was 104, and respirations were 36, on the third day. The patient showed evidence of marked myocardial and renal insufficiency of long standing, augmented by the present condition. Albumin was ++++. The blood count was 7,950. Transfusion was performed on the fifth day of disease with apparent good result. On the seventh day, however, myocardial insufficiency progressed and the patient died with cardiac rather than the usual respiratory failure.

Case 13.—E. V. R. entered the hospital on the first day of illness with typical influenza. He was in excellent physical condition with the exception of a low blood count, 3,500. Pneumonia developed on the third day. On account of inability to get donors, transfusion was not performed until the sixth day. The patient showed slight improvement but not permanent fixation. He was tremendously toxic, and the transfusion was repeated in twenty-four hours; but the patient became progressively worse and died on the ninth day. The terminal blood count was 2,900. We attribute this death to inability to transfuse in time. Clinically this patient was far better than Patient 14, a parallel case, at the time of entrance.

Case 14.—C. H. entered the hospital with typical influenza on the first day of illness. The temperature was 104.4. Typical bronchopneumonia developed on the fifth day. Transfusion was performed on the seventh day. Uneventful recovery ensued. Temperature was normal on the ninth day. The white blood count increased from 3,150 to 7,740 after transfusion. The patient was discharged early on account of closure of hospital. A recent report states that he is in perfect health.

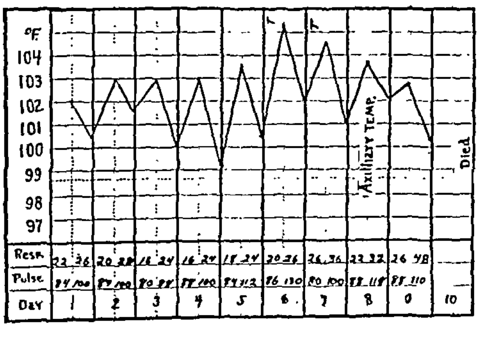

Fig. 6.—Clinical chart, Case 13.

Case 15.—J. A. R., aged 30, of poor physical development, entered the hospital on the second day of illness with typical influenza. He was given sodium salicylate with no results. The white blood count of 5,900 dropped to 2,675. The patient developed a fulminant type of pneumonia, and transfusion was performed while he was moribund on the fifth day. He died on the sixth day.

Case 16.—M. T., aged 41, of the dissipated type, entered the hospital with atypical influenza on the second day of illness. He was given sodium salicylate with no apparent effect. Double lobar pneumonia developed. The patient was extremely toxic and cyanosed, with low muttering delirium. Transfusion was performed while he was moribund. He died on the eighth day.

Case 17.—B. D., aged 39, of poor physical condition and with a history of clinical syphilis, entered the hospital on the third day of illness with typical bronchopneumonia of the nonresistant type. He was actively delirious. Transfusion was performed on the seventh day of illness. The general status, including the delirium, became improved. However, the renal and hepatic insufficiency was of such a degree that elimination was practically nil. Despite the corrective efforts, the patient died on the tenth day. The initial white blood count was 4,150, but rose to 10,900 after transfusion.

Case 18.—H. A. C., aged 43, well developed, entered the hospital with typical influenza symptoms. The white blood count was 2,400. Sodium salicylate was given intravenously on the second and third days with no effect. Pneumonia developed on the fifth day. Magnesium sulphate was given intravenously on the sixth day. The patient was extremely toxic and delirious. Transfusion was performed on the eighth day while the patient was moribund. He died on the tenth day.

Case 19.—G. L. T., aged 42, of dissipated type, entered with typical influenza symptoms, apparently very toxic, on the eighth day of illness. He was given sodium salicylate intravenously with no effect, and this treatment was repeated on the eleventh day with no effect. The white blood count was 5,800. Bronchopneumonia developed on the twelfth day, and transfusion was performed on the fourteenth day. There was a resultant typical temperature curve, and a blood count of 15,000. Resolution developed, but the toxic state remained extreme. The patient was given alkaline transfusion on the nineteenth day, after which the toxemia gradually disappeared. He was discharged to convalescence on the twenty-sixth day.

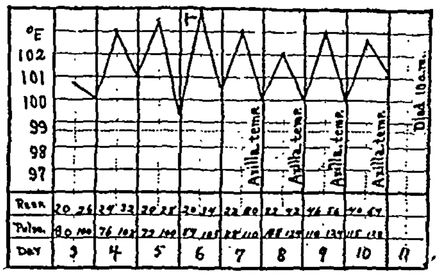

Fig. 7.—Clinical chart, Case 17.

Case 20.—W. L., a well built man, aged 26, entered the hospital on the second day of illness with a temperature of 103, typical influenza, and a white cell count of 6,250. Sodium salicylate was given intravenously without much apparent result. Bronchopneumonia was diagnosed. The left side was chiefly involved on the fourth day of illness. Transfusion was performed on the fifth day. There was a slight secondary rise in temperature. The white cell count was 9,300, with a definite localization of the process. The temperature returned by pseudocrises to normal on the eighth day. Uneventful recovery followed, and the patient was discharged on the sixteenth day.

Case 21.—C., aged 24, and in apparently good previous physical condition, was admitted on the second day of illness with typical influenza. A persistent high temperature, with a low blood count, 3,900, and definite bronchopneumonia indicated transfusion, which was performed on the fifth day. A slight secondary rise followed, succeeded immediately by improvement. The white cell count rose to 7,600. The convalescence was uneventful except for a slight rise due to follicular tonsillitis.

Case 22.—W. R. B., a well developed man, aged 34, was admitted on the third day of illness with typical influenza symptoms. Expectant treatment was used. A rise in temperature on the seventh day with a recurrence of pain suggested the intravenous administration of sodium salicylate. After this, pneumonic signs and a persistent low white count persisted. A transfusion was performed on the ninth day. The temperature dropped to subnormal in thirty-six hours. The physical signs cleared and an uneventful recovery ensued. The patient was discharged on the sixteenth day.

Case 23.—A. H., aged 29, a well developed man who had had apparently no previous physical disturbances of note, entered very ill, November 1, having been ill one day. He appeared slightly cyanotic and dyspneic. Pneumonic complications were anticipated, though the chest signs were negative. The common symptoms, however, were present. Despite a favorable blood count, the pneumonic signs increased, and the clinical course became progressive; also the urinary chlorids were diminished, and general acidosis was marked. A transfusion was performed on the seventh day. The temperature dropped to that of a slightly delayed resolution type. The laboratory and clinical disturbances became restored to normal types on the fifteenth day.

Case 24.—P. McK., aged 35, a well developed man of good physical status, entered on the second day of illness with typical influenza. He was given sodium salicylate with no apparent effect. Pneumonia developed on the fifth day. Transfusion was performed on the sixth day. Uneventful convalescence followed, and the patient was discharged on the thirteenth day.

Case 25.—R. B., aged 20, a man of slender build, entered the hospital on the second day of illness with typical influenza. He was given sodium salicylate. There was a typical influenza curve of temperature. A secondary rise in temperature with diffuse bronchopneumonia was noted on the sixth day. Transfusion was performed on the seventh day with the resultant typical temperature drop and clearing of symptoms. The patient made an uneventful recovery except for slight otitis media. He was discharged on the sixteenth day.

Case 26.—W. H. H., aged 32, well developed physically, presenting a case of toxic type and a white cell count of 5,000, entered the hospital on the second day of illness with typical influenza symptoms. He was given sodium salicylate with apparently good results. On the fourth and fifth days he was given 10 grains of quinin intravenously with no increase in the leukocyte count. Pneumonia developed on the fifth day, and transfusion was performed on the sixth day. The general status and white blood count were much improved, the white cell count reaching 12,900; but the high temperature continued. The temperature became normal on the tenth day, and an uneventful convalescence followed. The patient was discharged on the sixteenth day.

Case 27.—A. J., aged 23, of slender, tuberculous type, entered on the first day of illness with typical influenza. Sodium salicylate was given without effect. The patient developed typical bronchopneumonia of the central type on the fifth day. The white blood count was 2,300. Transfusion was performed on the sixth day. The white blood count was from 4,950 to 9,000. There was a slight secondary rise with decline by lysis. Convalescence was interrupted by pleurisy of the plastic type on the seventeenth day. For four days there was high temperature. The patient was discharged convalescent on the twenty-fifth day.

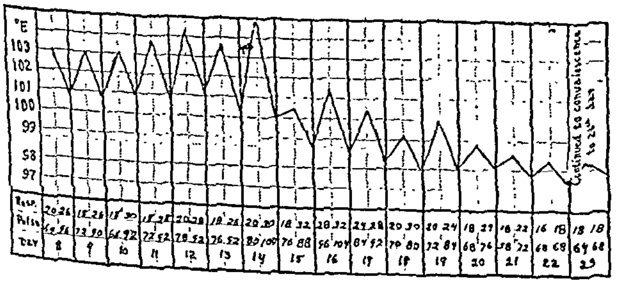

Fig. 8.—Clinical chart, Case 19.

Case 28.—L. D., aged 21, a well built man, entered on the second day of illness with typical influenza symptoms. A typical diffuse bronchopneumonia became evident on the fifth day, and transfusion was performed on the sixth day. An initial drop and secondary rise followed with a resulting clearing up of disturbances. This patient was very toxic prior to transfusion, which condition cleared up early in convalescence. The patient was discharged on the fourteenth day of illness in perfect convalescence.

CONCLUSIONS

1. The cause of influenza is an intoxicant of unknown origin.

2. The clinical course and pathologic physiology indicate that this intoxicant acts primarily on the central nervous system, with especial reference to the medullary centers. Vasomotor paresis is a prominent and constant feature.

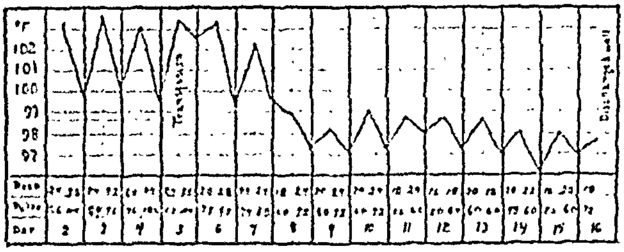

Fig. 9.—Clinical chart, Case 20.

3. Theoretical deductions and practical application affirm that a natural or an acquired immunity is corrective to influenza and its complications. Immune total blood transfusion is theoretically correct, and practical application has affirmed this.

4. The transfusion of total citrated immune blood with proper technic is a very simple and safe procedure.

5. The fulminant nature of the pneumonic complications of influenza demands the very early use of transfusion. Its use is of no avail if the reserve powers of nature have been allowed to progress to an incorrectable degree.

EPIDEMIC MENINGITIS AND DETECTION OF MENINGOCOCCUS CARRIERS *

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Early after the mobilization of troops, epidemic cerebrospinal meningitis appeared. It was my opportunity to be stationed at one of the cantonments in an endemic area and later to be at the port of embarkation from which most of our troops were sent overseas.

The English had developed means for detecting carriers, but in this country the monograph of Flexner was used largely as the guide. The steps are:

1. Selection of those from whom cultures are to be taken.
2. Taking of cultures with the West tube.
3. Inoculation of veal glucose serum agar.
4. Selection of colonies.
5. Identification of organisms by:
    (a) Morphology in stained specimens.
    (b) Agglutination tests (polyvalent serum and normal horse serum).
    (c) If found to be meningococci, agglutination tests with the various monovalent type serums.

This system we tried to follow, and from it developed our methods. Oct. 16, 1917, we had our first case of meningitis. The laboratory was not equipped, and only Lieut. (now Major) O. F. Broman and I were ready to go to work. We made West tubes, poured plates, and went to the barracks from which the patient

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* Because of lack of space, this article is abbreviated in The Journal by the omission of certain tables. The complete article appears in the author's reprints.

in the hospital had come. Here we learned that this man had been only one day with his present company, and having no special friends in the company, visited with most of the men. Furthermore, he had been in Company 62-164 D. B. until the day before. When we came to select contacts, we found that we had the company of more than 200 men of Company A, 354th Infantry, and the company of more than 200 men of Company 62-164 D. B., or more than 400 cultures in all to take.

We started at our task and completed it under the greatest of difficulties. The next day cases occurred in other organizations, and cultures of more companies had to be taken. In a very short time we decided that it is hard to determine the contacts in the Army, that friends do not sleep or sit near each other, and that carriers are found to be widely distributed in the company or even in the camp. On these matters we have the concrete data which bear out these assertions, and it is our opinion that to be of most value, companies must be examined for meningococcus carriers when a case occurs. It also developed that taking cultures with the West tube is not feasible or practicable. In place of West tubes we substituted at first only a few nasal swabs, gradually more, and finally we used altogether the nasal swab.

METHOD OF TAKING CULTURES

Thin cotton swabs on small diameter wooden applicators are prepared, and usually ten are sterilized in one test tube. To get the culture the nose is slightly pressed back by the tip, the mouth held open, and then the swab is carried back and downward, usually without touching the sides, clear to the posterior wall of the nasopharynx. Then the swab is rotated and again carefully withdrawn. The plate is inoculated directly with the swab unless there is much mucus, when a spreader is used. Before beginning to take cultures, the men in the company are lined up in two lines, the doors are locked, the windows are closed to get the air as quiet as possible, and a clerk on each side of the table takes the name of the soldier and gives him a number, which number also is used to indicate his culture on the agar plate. Usually the one clerk gives odd numbers and the other gives even numbers. The check list is marked to indicate the organization from which cultures are taken, and it is turned in to the clerk at the laboratory. The medium used at Fort Riley consisted of the regular glucose veal serum agar as advocated by Lieutenant-Colonel Flexner. Later Huntoon's agar to which laked human blood is added to produce a slightly pink color was used and found to produce more and larger meningococcus colonies.

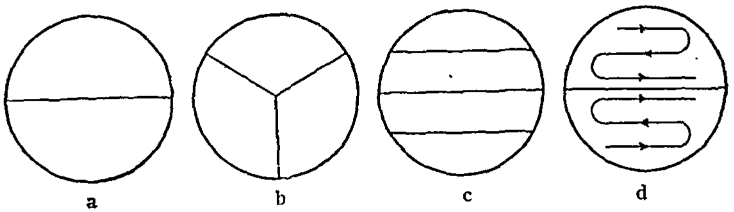

Fig. 1.—Division of plates into sections (*a*, *b* and *c*); method of making inoculation streak (*d*).

When possible, the plates are incubated over night in the inverted position before they are inoculated. As we did not have enough Petri dishes, at first we made cultures from two individuals, later from three, and at times from four on the same plate (of course, we preferred not to use less than one-half the area of a plate for each person from whom a culture was taken). The plate was divided into from two to four sections by marking on the bottom of the Petri dish with a wax pencil as is shown in Figure 1 *a*, *b* and *c*. The segment of the plate is inoculated directly with the swab, unless there is much mucus, when a spreader is used. The inoculation streak is made as is shown in Figure 1 *d* without rotating the swab. The segment is numbered to correspond to the soldier's number on the check list. The plates are kept warm and put in the incubator. The colonies are selected after from eighteen to twenty-four hours' incubation, the small translucent dew drop colonies being ringed with the wax pencil. When several colonies from one segment were selected, the colonies were lettered a, b, and so on. It was soon decided that unless none of the colonies could possibly be meningococci, the most meningococcus-like colonies should be ringed. Slides are then divided into ten spaces and numbered 0, 1, 2, 3 and so on. A drop of distilled water is placed in each segment of the slide, and a key similarly ruled is made on paper; then as a portion of a colony is transferred to the center of a segment on the slide, the soldier's number is put in the corresponding square on the key chart. The plates from which colonies are placed on one slide are put up in one pile. The system may be explained by an illustration (Fig. 2).

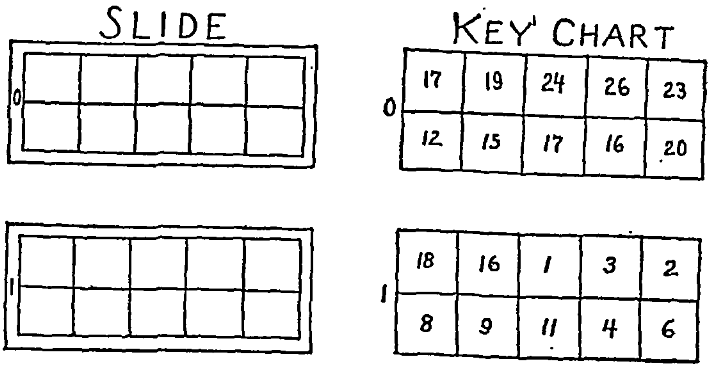

Fig. 2.—System of checking.

After drying, the slides are fixed, and stained by Gram's method, with a counter stain of safranin or Bismarck brown, and the gram-negative diplococci noted.

After going through the plates of a whole organization, the worker has only the numbers of the probable meningococcus colonies to deal with. His list might read like this: 6, 21, 13, 190; and these he may have found on Slides 0, 2 and 18. Then the worker takes from Pile 0 the plate containing Colony 6, from Pile 2 the plate containing Colony 21, and so on. Slants of veal glucose blood agar or veal glucose hormone agar enriched with laked blood are inoculated from what remains of the colonies that are possibly meningococci. The tubes are incubated over night; but if the results must be given at once (that is, within twenty-four hours after taking the cultures), Krumwiede's slide agglutination method is used, that is, finely divided growth is added to polyvalent antimeningococcus serum and to normal horse serum as a control. The growth on the slant medium the next day is washed off in sterile salt solution and added to polyvalent antimeningococcus serum with a final dilution of 1:200, and to normal horse serum with a final dilution of 1:50. We really preferred diluting the serum properly and then mixing in carefully a portion of the agar growth. The tubes are then put in the 55 C. incubator for from four to six hours. If there is agglutination only in the polyvalent antimeningococcus serum, the gram-negative diplococcus is a meningococcus; but if there also is agglutination in the normal horse serum, it is not so regarded.

The technic is satisfactory but tiring. It is possible to train officers readily in the method. At Camp Funston and in the camps of the port of embarkation we had frequently to give results early; but it was regarded better to take out those suspected of harboring true meningococci than to wait until the second day for the absolute, final diagnosis. We may miss a portion of the carriers, but we certainly get those harboring any number of meningococci, and it is essential to remove all the infected men as soon as possible.

As time went on, more cases of meningitis developed at Camp Funston, the disease was occurring in new organizations, and it became evident that we must go still farther to check the disease. As we had been able to accomplish results in the control of meningitis in organizations from which cultures had been taken, it was decided to take cultures of the entire command, about 40,000 troops. This seemed impossible, but it was accomplished.

Six officers from the medical officers' training camp were selected as nasopharyngeal swabbers, nine officers were placed in the laboratory, and the enlisted men worked in day and night shifts. Whether the efforts were worth while and whether it is worth while to get carriers is to be judged from the results obtained and herewith tabulated.

EPIDEMIC MENINGITIS AT CAMP FUNSTON

The first case of meningitis occurred Oct. 16, 1917, in Company A, 354th Infantry. October 17, there were two cases in Company H, 353d Infantry, and one in Company B, 353d Infantry. The cases that occurred and the organizations involved are shown in Tables 1 and 2. In all there occurred, from October 16 to February 3, 148 cases in eighty-three organizations, and two cases in civilians. On the reservation there were at the outbreak of the disease about 50,000 troops in regular organizations of the 89th Division, the 164th Depot Brigade, 13th Cavalry and medical officers' training camp. October 15, there was a considerable interchange of soldiers, men being sent from the 89th Division to the 164th Depot Brigade and from the 164th Depot Brigade to the 89th Division, so that on the day before the first case occurred, men were sent to and from practically every organization in the camp. All of the men except those of the 13th Cavalry were from an area in which meningitis is endemic. In December, the 92d Division (colored) was filled up with men from various parts of the United States, and large numbers of men were sent to the medical officers' training camp. The cases of epidemic meningitis arranged according to months and organizations are shown in Table 1.

TABLE 1.—CLINICAL CASES OF EPIDEMIC MENINGITIS ARRANGED ACCORDING TO MONTHS AND ORGANIZATIONS

Month	89th Division	92d Division	M. O. T. C.	13th Cavalry	Civilians
October, 1917	15	..	..	1	2
November	75	..	..	0	0
December	30	4	1	0	2
January, 1918	12	5	4	..	0
February (3d inc.)	0	0	1	..	0
	132	9	6	1	4

TABLE 2.—CULTURES TAKEN FOR THE DETECTION OF CARRIERS, AND CARRIERS FOUND

Month	Cultures Taken	Carriers Number	Carriers Per Cent.
October (16 to 31 inc.)	4,712	130	2.8
	11,337	532	4.7
	37,435	1,152	3.1
	48,695	1,470	3.0
	102,179	3,290	3.22

In the various organizations, 102,179 cultures were taken. To these must be added the cultures taken for the release of cases and carriers as well as whole wards and nurses and attendants in the hospital.

The cultures for the detection of meningococcus carriers were taken with the results given in Table 2.

Our culture work must be further divided, for we took cultures of organizations: (*a*) when a case occurred; (*b*) in the routine, and (*c*) when a large percentage of carriers was found in an organization. (The carriers were always removed from the organization and taken to a carrier camp. The workings of this will be shown farther on.)

The analysis of results is shown in Tables 3 and 4.

TABLE 3.—NUMBER OF CULTURES AND NUMBER AND PERCENTAGE OF CARRIERS FOUND WHEN MENINGITIS HAD OCCURRED IN AN ORGANIZATION AND ON ROUTINE CULTURE OF THE WHOLE CAMP

Month	After a Case: Cultures Taken	After a Case: Carriers No.	After a Case: Carriers Per Cent.	Routine: Cultures Taken	Routine: Carriers No.	Routine: Carriers Per Cent.
October, 1917	4,712	130	2.8	.....	...	...
November	6,847	258	3.77	2,358	108	4.58
December	2,395	114	4.76	25,711	540	2.10
January, 1918	2,140	91	4.25	38,700	1,298	3.37

TABLE 4.—NUMBER OF CULTURES AND NUMBER AND PERCENTAGE OF CARRIERS FOUND ON ORIGINAL AND RECULTURE IN ORGANIZATIONS IN WHICH A LARGE NUMBER OF CARRIERS WERE FOUND

Month	Cultures Taken: Original	Cultures Taken: Reculture	Carriers Number: Original	Carriers Number: Reculture	Carriers Per Cent: Original	Carriers Per Cent: Reculture
October, 1917	4,712	.....	130	..	2.8	....
November	2,192	2,158	123	52	5.61	2.42
December	1,974	1,908	196	76	9.93	3.99
January, 1918	137	129	10	5	7.29	3.87

These tables, *based on a large number of cultures*, show that generally the percentage of carriers was higher after a case than in the routine cultures. The first complete routine cultures disclosed 3.43 per cent. of carriers, while the second routine cultures on the same troops disclosed 3.02 per cent. A most interesting observation was obtained on reculture when a large percentage of carriers was found in the first culture. While in general less than one-half as many carriers were found, it many times happened that no carriers were found on the second culture. It must, of course, be remembered that the carriers were always removed from the organization. The effects on the epidemic of taking out carriers may be interpreted differently by different observers. For this reason the clinical cases as they occurred are shown according to date of occurrence and according to the organization in which they occurred. Clinical cases arranged according to date of occurrence are shown in Figure 3 and Table 5, and according to organization in Table 6.

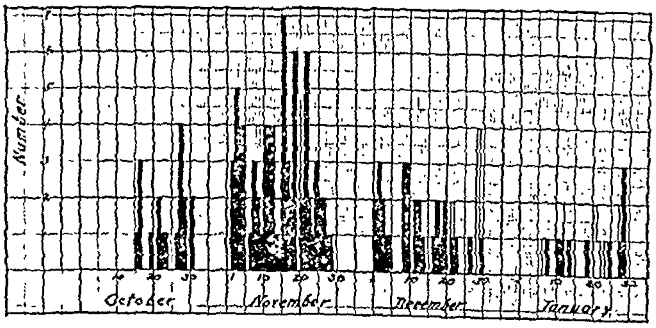

Fig. 3.—Number of cases and dates of occurrence of positive spinal fluid meningitis at Camp Funston, from Oct. 16, 1917, to Feb. 1, 1918: unshaded portion, cases occurring in newly recruited organizations (92d Division); shaded portion, cases occurring in original organizations (89th Division).

Of the 152 cases, four, or 2.6 per cent., occurred in officers, and no cases occurred among medical officers, nurses, or enlisted men in the wards. Four cases occurred in civilians, two being admitted to the hospital in the first day of October, or about two weeks before any soldiers had the disease. There was no traceable connection between these first two civilian cases and the first cases occurring in soldiers.

From October 16 to February 3 is 171 days, and there occurred 150 cases of clinical epidemic meningitis. If this interval is divided into three parts of thirty-seven days each, we find that there occurred seventy-five cases in the first, forty-seven cases in the second, and thirty cases in the third thirty-seven days. But in the third thirty-seven day period only fourteen cases occurred in organizations that had been in camp the first and second thirty-seven day periods. The thirty-seven day periods correspond in the epidemic approximately as follows:

First thirty-seven days, before routine cultures were taken.

Second thirty-seven days, time of first complete routine cultures in the camp.

Third thirty-seven days, time of second complete routine cultures in the camp.

It may be objected that epidemics die out naturally; but in the third period, when new troops came in they came in gradually, so that cultures could be made, and there occurred only fifteen cases in approximately 15,000 troops, as compared to ninety cases in the 89th Division of about 40,000 troops from October 16 to December 1. But even if the spread and severity of the epidemic would usually have decreased, still by taking cultures of whole companies and the routine culture taking of the camp, another very important result was obtained. Sixteen of our carriers developed clinical meningitis, and five more developed sufficient clinical signs and symptoms to have lumbar puncture performed. Nine cases of meningitis with purulent spinal fluid developed in soldiers from whom cultures were taken and who were not detected as carriers; but in at least sixteen cases, by means of our cultures we decreased the probable spread of the disease. According to the thirty-seven day periods this may be presented as in Table 7.

TABLE 7.—PROTECTION AFFORDED BY CULTURES

	Cases of Spinal Fluid Meningitis			
	Total	In Carriers	Organizations Exposed	Per Cent. of Protection
1st 37 days	75	11	64 times	18.7
2d 37 days	47	2	45 times	4.44
3d 37 days	14	3	11 times	27.27

This percentage of protection is a considerable one and indicates that taking cultures after cases and the routine taking of cultures of troops from endemic areas are of value. The development of meningitis in carriers will be discussed later.

Apparent benefits of taking cultures after cases and the routine taking of cultures of troops from endemic areas are demonstrated by these facts: (*a*) Sixteen of the thirty cases occurring from December 24 to February 3 were in newly recruited organizations. (*b*) Repeated cases of meningitis in an organization occurred almost entirely before December 1 (directly after the beginning of routine culture taking).

EPIDEMIC MENINGITIS AT THE PORT OF EMBARKATION, HOBOKEN, N. J.

Most of the troops sent to France, England and Italy were sent through this port. There are two embarkation camps, of which the one at Camp Mills has been under canvas, while at Camp Merritt barracks have been used. In addition to the camps, the Medical Department under Col. James M. Kennedy controls embarkation and debarkation hospitals (nine in number), two post hospitals, General Hospital No. 1 and such part of the Rockefeller Institute Hospital as is used for soldiers. The first case of meningitis occurred in September at Camp Mills. The occurrence in embarkation cases is given in Table 8.

TABLE 8.—CLINICAL CASES OF EPIDEMIC MENINGITIS AT THE PORT OF EMBARKATION, ARRANGED ACCORDING TO MONTHS

	Total	Camp Mills	Camp Merritt	Embarkation Hospitals
October, 1917	1	0	0	1
November	2	0	0	2
December	3	1	1	1
January, 1918	3	0	2	1
February	2	0	1	1
March	7	0	1	6
April	4	1	3	0
May	9	5	2	2
June	15	7	4	4
July	18	13	2	3
August	6	2	3	1
September	3	2	1	0
October	5	1	2	2
November	5	0	4	1
	83	32	26	25

The entire value of taking out the detected carriers cannot be determined, for until about May, 1918, the records of communicable diseases on the voyage overseas were not kept at this office, and the Surgeon-General's Office has no records available on this point. Since June, the ship's surgeon has provided the surgeon at the port of embarkation with a copy of the report delivered to the debarkation officers overseas, and from these reports we learn that two cases of meningitis occurred in organizations from which patients were taken out; but the men were gone from the camps before cultures could be taken. A number of cases occurred on the voyage in organizations from which no patients were taken during the stay in embarkation camps, but none occurred in organizations from which the carriers were removed. Three cases of meningitis occurred in carriers taken out on positive culture.

TABLE 9.—NUMBER OF CULTURES AND NUMBER AND PERCENTAGE OF CARRIERS FOUND WHEN MENINGITIS HAD OCCURRED IN THE PORT OF EMBARKATION

	Cultures Taken	Carriers Found	
		Number	Per Cent.
October, 1917	30	4	
November	0	0	
December	0	0	
January, 1918	333	16	4.8
February	230	13	5.6
March	156	20	12.8
April	634	17	2.6
May	701	11	1.5
June	1,623	38	2.3
July	1,191	27	2.2
August	463	7	1.5
September	5	0	0.0
October	208	1	0.4
November	459	4	0.9
Total	6,033	158	2.6

CARRIERS

Detection of carriers is of scientific and practical interest only so far as it effects the spread of the disease, as carriers develop the disease, and the manner of clearing up carriers. It is necessary to consider these points, especially as so many officers, without knowing a thing about it, have tried to discredit the value of detecting and removing carriers. That carriers spread the disease can hardly be doubted.

This is true from analogy to other diseases, such as diphtheria, and because taking out carriers certainly seems to have prevented the spread of the disease.

Detectable carriers must be divided into three groups: (*a*) those who are in the incubation period of the disease; (*b*) casual carriers, and (*c*) chronic carriers.

As was stated earlier, by our methods we probably detected the more heavily infected carriers. On those we detected we have considerable epidemiologic data to substantiate the assertion that our carriers were able to spread the disease; and that taking the carriers from the organization stopped the disease in that organization is evidenced by the following concrete cases, of which more could readily be added:

(*a*) In Company C, 356th Infantry, two cases occurred, Nov. 19, 1917, and two, Nov. 22, 1917. Cultures were taken, November 22, 25 and 29. The number of men from whom cultures were taken was 152, 157 and 129, and the number of carriers detected was 7, 9 and none, respectively.

(*b*) In Company A, 340th Field Artillery, 200 routine cultures were taken, November 22, and eleven carriers were detected. November 25, 150 recultures were taken and five carriers detected. November 30, 176 recultures were taken and no carriers detected. November 28 and December 3, two carriers taken out developed spinal fluid meningitis.

(*c*) In Company E, 353d Infantry, November 21 there occurred a case. November 22, 163 cultures were taken and no carriers found, and no further cases occurred in the company.

The development of the disease in carriers has been much discussed. Gates,[1] in his article on antimeningitis vaccinations, says, in his conclusions: "Moreover, agglutinins have been demonstrated in the blood serum of chronic carriers of the meningococcus. Evidence is thus brought forward that the relative immunity of chronic carriers to epidemic meningitis may be due to the presence of specific antibodies in the blood stream." This evidence we do not refute; but some of our detected carriers did have clinical meningitis with purulent spinal fluid. We made many examinations and many kinds of examinations, and from these believe that we have noted different varieties or degrees of epidemic meningitis:

1. Infection in the nasopharynx only or principally. These are our ordinary carriers.

2. Those having the clinical symptoms and signs of meningitis, but clear spinal fluid free from bacteria and polymorphonuclear cells. Five of our detected carriers had sufficient symptoms and signs to have lumbar puncture performed on them, and a very large percentage of our carriers early in the epidemic had severe headache, nausea and fever but cleared up shortly and lumbar puncture was not performed on them.

3. Those having clinical symptoms, clear spinal fluid and no increase in cells, but meningococci in the fluid. Of such cases we observed two: S., Company F, 354th Infantry, and R., Company C, 356th Infantry. That injection of the killed vaccine should, in at least a number of instances, produce severe headache, vomiting (projectile at times) and opisthotonos shows that the endotoxin has a predilection for the meninges, and it is possible that the toxin selects the meninges, injures them, and makes the field fertile for the meningococci already in the blood stream and gives rise to the frank epidemic meningitis with purulent spinal fluid.

4. Those having frank epidemic meningitis. Nineteen of our detected carriers developed the frank type of epidemic meningitis, one developed meningeal symptoms with meningococci in the fluid but no pus cells, and four others developed sufficient symptoms to have lumbar puncture performed. Nine cases of purulent spinal fluid meningitis developed in soldiers missed as carriers on cultures taken less than thirty days and more than seven days before the onset of the disease, and two soldiers missed as carriers in this way developed sufficient symptoms to have lumbar puncture performed. These data when further analyzed may be presented as in Table 10.

TABLE 10.—DEVELOPMENT OF EPIDEMIC MENINGITIS IN SOLDIERS WHOSE CULTURES HAD BEEN TAKEN

	Detected as Carriers		Missed as Carriers	
	Developed Meningitis with Purulent Spinal Fluid	Developed Clinical Meningitis, but No Purulent Spinal Fluid	Developed Meningitis with Purulent Spinal Fluid	Developed Clinical Meningitis, but No Purulent Spinal Fluid
Within 7 days or less after cultures were taken....	19	5	4	2
More than 7 days after cultures were taken..	0	0	5	0
Total...........	19	5	9	2

The incubation period lies between six and twelve days after exposure, so that it is evident that our detected carriers who developed meningitis (purulent spinal fluid and with sufficient clinical symptoms to have lumbar puncture done) were probably not carriers but early cases; and we have no evidence to prove that what are generally known as carriers (especially chronic) develop meningitis. Probably the five carriers who had sufficient clinical symptoms of meningitis had enough toxin to affect the meninges. At Camp Funston about 0.2 per cent. of the troops developed meningitis, while 0.48 per cent. of the detected carriers had the frank form of the disease, or the disease was more than twice as frequent in detected carriers as in all the troops coming from an area in which the disease is endemic. The disposition of carriers is an important factor. At first we sent detected carriers to the hospital; but later they were taken to detention camps where military drill could be continued, that is, the soldiers remained in training. At these detention camps at least once a day silver nitrate solution or argyrol was thoroughly applied to the tonsils and the nasopharynx. However, even without special treatment, about 90 per cent. cleared up very soon after they were taken from the active focus of infection; that is, at least 90 per cent. are only casual carriers. By February 1, out of 3,290 carriers at Camp Funston, only seventy-two, or 2.19 per cent., were found to be chronic carriers. These were all later cleared up by the laryngologists. At the port of embarkation about the same percentage of chronic carriers was hard to clear up as at Camp Funston.

SUMMARY AND CONCLUSIONS

1. Detection of carriers is possible and practical and has marked advantages over quarantining of contacts as has been generally practiced. Cultures of large numbers of troops can be taken with a high percentage of efficiency, and to get the best results it is necessary to take cultures of whole organizations rather than only contacts. The taking of cultures of large numbers of persons at one time has been necessary, and

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[1] Gates, F. L.: J. Exper. Med. 28: 449 (Oct.) 1918.

at this time we are taking cultures for diphtheria bacilli of all sick and wounded returning from overseas (from 4,000 to 5,000 a week and up to 2,000 at a time) and getting results showing high efficiency of work on a massive basis. There is no evidence that the results on our large numbers of cultures were less accurate than were the results of other workers who took cultures of only a few at a time. In fact, we got better results when we were hard pushed then when we had less work, for when there was much to do the officers were more keen.

2. The taking of cultures of whole organizations or even entire camps need not interfere with military training; taking out the carriers and putting them in a carrier camp interferes less than quarantining even only the contacts.

3. Detecting and taking the carriers out of organizations is of value, and the routine taking of cultures of the whole command seems indicated if the troops come from areas where epidemic meningitis is endemic.

4. Detected carriers have the disease, but our data seem to show that those that developed the disease were already in the incubation period when the cultures were taken. We have no evidence that chronic carriers developed the disease.

5. The cotton swab on a straight wooden applicator, the cultures being taken from the nasopharynx through the nose, gave us good results, and its use is much more feasible than the West tube and bent wire applicators when cultures of large numbers of troops are to be taken.

Sixth Avenue and Eighteenth Street.

THE PATHOLOGIC ANATOMY OF INFLUENZAL BRONCHOPNEUMONIA *

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In this report, based on approximately 200 necropsies, no attempt will be made to distinguish between changes due to the unknown virus and those from mixed or secondary infection; only the most outstanding features are discussed.

Perhaps the most lasting impression from long association with lobar pneumonia in postmortem examination is that when it alone is responsible for death, with very few exceptions,[1] a considerable part of the total pulmonary parenchyma is consolidated, undistensible and heavier than normal; even when limited to one upper lobe, that lobe is as a rule huge, and the lung weight as a consequence frequently doubled.

Therefore, the first feature of the lungs in influenza to attract attention was the relatively small amount of lung tissue solid with grossly demonstrable pneumonia. Even when measured, the total of such regions is so small that it is difficult to ascribe death to the pneumonia with an assurance at all comparable to that with which death is accounted for by lobar pneumonia; in fact, the amount of lung tissue in influenza actually pneumonic seems too little in many cases to explain death by pneumonia. This is best shown by distending the lungs with air, for many of the dark red or purple places, apparently airless and semisolid, balloon out and become quite pink. When surfaces are made by cutting tissues actually pneumonic from influenza, it is not common to find gray or gray-red and finely granular plugs of fibrin and cellular exudate which come away on the knife, as is the case in lobar pneumonia and most bronchopneumonias other than those of the influenzal type. Such surfaces in the nondistensible places in influenzal pneumonia are wet, "velvety" and not granular, but smooth; they resemble raw meat or wet skeletal muscle. The redness of the button-like, firm, superficial regions of pneumonia, likened by some observers[2] to hemorrhagic infarcts, is due perhaps as much to the well-preserved cells of the exudate, many of which are mononuclear, as to the blood content.

However, ranking in importance with the relatively small amount of actually pneumonic lung, or perhaps entitled to first place as a conspicuous feature, is the huge, often thin and watery bloody exudate in the lung tissue and bronchioles. This bloody fluid, on the development of rigor mortis, often pours out of the nostrils so as to stain a large part of the white sheets in which bodies are wrapped. It mainly is responsible for the low level to which the lungs sink when put into water and for the total submersion of some; many are like the lungs of the drowned. The fluid mixed with air and forming a blood-tinged froth is abundant in the trachea, larynx and large air passages after death. Accumulating under the visceral pleura, it makes one of the most interesting and tell-tale signs of influenza; for normally the pleura, fitting the underlying lung tissue snugly as a transparent membrane, allows every detail of the coal-dust mosaic-like markings, as well as the coarser details of the pink, air-containing vesicles, to be clearly seen; but, with the presence of this bloody fluid in the subpleural lymph vessels in abundance so as to distend them, there are produced opaque, reddish brown places, usually a few centimeters in diameter, frequently seen at once when the sternum and costal cartilages are removed. They are so distinctive that influenza is at once suggested as the cause for death; and when no clinical details are known, are highly important clues as to the cause of death. This dissection of the outermost layers of the pleura is very common in the angles formed by fissural surfaces—in the bottom of the cleft. Small hemorrhages in the pleura are also common.

Another feature also due to this bloody exudate is that usually there is some fluid of the kind just described in one or both pleural cavities—more, as a rule, on the side of greater lung involvement. Now, with most pneumonias the pleural exudates are not so blood tinged. With lobar pneumonia they are not only commonly yellowish but also heavy with fibrin; large masses of yellow fibrin wet with plasma often make the lung in lobar pneumonia actually "shaggy"; this I have not seen in influenza. There is commonly some fibrin on the lung, but search is often necessary to find it. It is seldom more than 1 mm. thick, and is often less. The amount of the blood-tinged fluid in the pleural cavities varies widely. When measured, from 25 to 100 c.c. are frequent; larger amounts have been weighed, and the following weights will serve as examples of these exceptional instances: fluid in the right pleural cavity, 840, 345, 860, 600, 320, 930 and 600 gm., each one case; fluid in the left pleural cavity, 900, 1,000 and 320 gm., each one case; 660 gm. in the right with 800 gm. in the left; 1,120 gm. in the right with 1,140 gm. in the left, each one case. These large collections of fluid are in no sense "empyemas." The fluid is only slightly turbid. When time has elapsed for sedimentation after death, the fluid taken for bacteriologic examination, if the pipets are not introduced too deeply, is quite transparent and clear, often with a little of the lilac tint of hemolysis; that collected from deeper layers is turbid.

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* From the Pathological Laboratory, Rush Medical College.

[1] Compare report by Clark and Batman (J. Infect. Dis. 1: 229, 1904) on capillary bronchiolitis, with the symptoms of lobar pneumonia including a crisis.

[2] Abstracts of Foreign Literature Compiled by the British Medical Research Committee, J. A. M. A. 71: 1575 (Nov. 9) 1918.

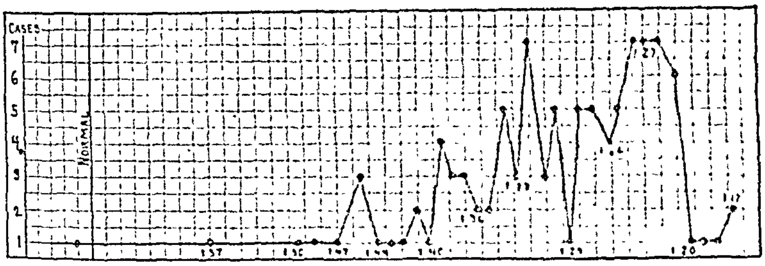

Chart 1.—Ratios of lung weight to body weight in 103 cases of lobar pneumonia from necropsies in 1915 and 1916.

This bloody exudate is not pus in the sense that pus is the product of liquefaction necrosis; there is no suppuration. Postinfluenzal empyema, however, does occur, as well as empyema with repeated thoracentesis. This thin, characteristic, bloody exudate of influenza contains only a little fibrin; or none at all may be visible grossly. It is unlike the pleural exudate of any other form of acute pneumonia with which I am familiar. It reminds one most of the inflammatory exudates in such places as the arm from acute sepsis following wound infection, or the thin, bloody fluid of woody phlegmon of the neck; it is more like exudates due to streptococcus than those we are familiar with in pneumococcus inflammations. The fat of the thymic body and other mediastinal fat, as well as all of the tracheobronchial lymph glands, are also often thoroughly wet with this fluid.

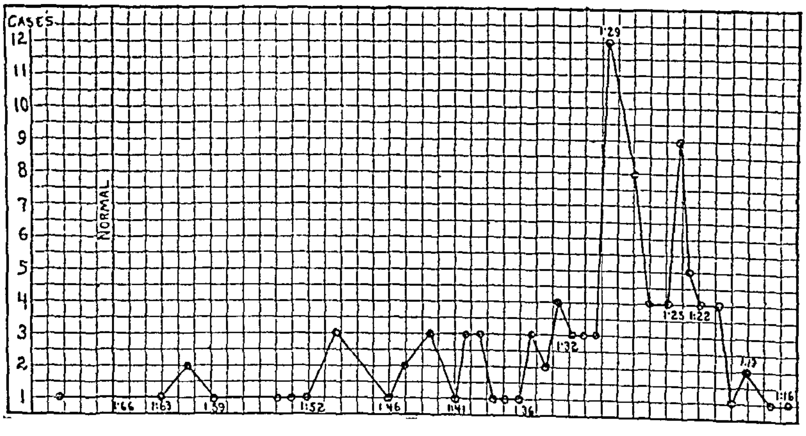

Chart 2.—Ratios of lung weight to body weight in 100 cases of influenzal pneumonia.

Since so much fluid was found in the lungs and as part of an exudate which in many instances escaped into the pleural cavity, less because of pleuritis there than because the lungs, so to speak, "overflowed," the lung weights were compared with the weights of lungs in lobar pneumonia. This comparison is shown by the accompanying charts of the ratio of lung to body weight.[3] From the charts it is apparent that the ratio of lung weight to body weight in lobar pneumonia and influenza are roughly similar; whereas with lobar pneumonia, the precipitate of fibrin is considerable, other parts of the pulmonary parenchyma being compensatorily emphysematous, in influenza, the pneumonia is less and the increased weight due in large part to fluid.

The pneumonia of influenza is commonly referred to as bronchopneumonia. It may be so designated, but it differs from other bronchopneumonias in its predilection for the periphery of the lungs and in the extent to which the inflammation is hemorrhagic.[4] These features, as well as the relatively little consolidation, are well shown by the following account, which may be taken as fairly typical of conditions found with death early in the disease:

> The upper lobe of the right lung is easily ballooned out with air, likewise the middle lobe, so that the black places due to coal dust are very black, the intervening lung tissue pale gray or pink. Except for a place 4 by 2 cm. on the mesial surface of the upper lobe where fibrous adhesions were torn, the pleura is smooth. There are two solid places in the back of the upper lobe, and the pleura covering them is a little swollen. These are 3 by 4 by 5 cm., not at all sharply outlined, with moist gray plugs (hand lens) in the air sacs which cut so as to leave smooth wet surfaces; a thin, watery red fluid comes out of the minute bronchioles in them. The lung tissue around them is very wet but contains air; their bronchi contain a thin fluid with opaque flocculent masses in it. Another similar solid place near the front margin of this upper lobe, 5 to 6 cm. in diameter and 1 cm. from the pleura, has a good deal of blood in it. A solid place is in the back of the lower lobe, like the others but with a layer of fibrin on the pleura over it, as thin as transparent paper. This is also very superficial, and the bronchus to it is full of a frothy, thin, red fluid. A fifth place, from 5 to 6 cm. in diameter, less sharply outlined, with thin fibrin on its pleura and 2 cm. deep (the third dimension), is in the lower lobe near the diaphragmatic surface, which is about one-third covered by fibrin. All the bronchi to this lobe contain these flocculent masses, some adherent to the lining. In the depths of this lobe about the large bronchi there is some consolidation 1 to 2 cm. wide, sharply outlined and deep red. Except in these solid places this lobe distends easily with air, as does the middle lobe, which has no solid places.
>
> The pleura of the left lung is smooth, and both lobes distend completely with air except in two solid places 2 to 4 cm. in diameter, one in the front of the upper lobe and 1 cm. deep, dark red and apparently full of blood, the other in the lower lobe and in all essentials similar. The first of these has sharp margins at lobule septums, and the pleura covering it is raised and translucent. In the smaller bronchioles of the left lung there is a little creamy mucopus.

There was a little slightly turbid bloody fluid in each pleural cavity.

Next in importance as a characteristic of this disseminated pneumonia, hemorrhagic in its early stages and phlegmonous later, is the change in the medium-sized and smaller bronchioles to the involved lung tissue. Early their linings are simply red, their channels filled with a thin, blood-stained froth or fluid; later the linings are necrotic and their content either a thin mucopus resembling that of early gonorrhea or such a mucopus with small flocculent gray or gray-brown masses in it; slight dilatation of the smaller bronchi is common.

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[3] The normal line is the 1.5 per cent. of the body weight, or 1:66, as given by Vierordt (Anatomische, physiologische und physikalische Daten und Tabellen, Ed. 3, 1906, p. 44).

[4] Symmers, in consequence of the hemorrhages, has compared influenzal pneumonia to that of pneumonic plague (J. A. M. A. **71**: 1482 [No. 2] 1918).

The brain substance is quite regularly swollen, the convolutions of the cerebrum flat; and although this may be evident at once by examining the head first, it is also very well shown by comparing segments made by coronal sections of influenzal brains after hardening in formaldehyd with other brains similarly treated; they are not so swollen as are the brains of septic abortion or other forms of generalized streptococcus infection, nor so pale; but the even external contour and narrowness of the lateral ventricles is a conspicuous feature of influenza; this edema of the brain substance is less than that of uremia or heat stroke.[5]

Still another feature of influenza is that the spleen is not so large as in lobar pneumonia. This statement is a general one and is made without reference to the stage of either disease. The kidneys are regularly the seat of cloudy swelling, and have tense capsules. If any gross alteration of the liver deserves mention as fairly constant, it is the presence of patches of yellow on the front surface due to superficial fatty change.

Less constant are generalized icterus; the early appearance of staining of the lining of large blood vessels by laked blood; patches of necrosis of the larynx or trachea lining; hyperplasia of the lymphoid tissues of the thorax and neck; slight acute serofibrinous pericarditis; acute interstitial emphysema of the lungs and mediastinal tissues, or of these with subcutaneous tissues as well; otitis or accessory (nasal) sinus inflammation, or actual suppuration as small abscesses in the lungs.

It is difficult to believe that a disease with so many distinctive features and affording, as it has, so much of novelty in pathologic anatomy can fail to possess a correspondingly definite etiology.

A more complete report with results of microscopic studies will be made later.

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[5] McKenzie, Pierce, and LeCount, E. R.: Heat Stroke, with a Second Study of Cerebral Edema, J. A. M. A. **71**: 260 (July 27) 1918.

Children in the Connecticut Courts.—Prior to 1917, Connecticut had no special laws governing the trial of children. They were subject to the same legal processes as adults. A law passed in 1917, provides that no child under 14 shall be committed to a jail or common lockup while awaiting trial. In a report on the subject named, prepared by Prof. William B. Bailey of Yale University for the National Children's Bureau, the need for better care of dependent and delinquent children in Connecticut is brought out. Mental examinations to determine the mental condition of delinquent children are rarely had, and repeaters are numerous, until it is determined by a mental examination that such children are feebleminded. In New Haven 692 children were brought before the courts in 1914 and 1915, of whom 672 were boys; most of them for trivial offenses, the most serious being that of a boy of 6 for burglary. The report points out that one fourth of the children brought before the courts in New Haven were from families which had at one time received aid from the associated charities, though the connection between poverty and delinquency is difficult to establish.

THE DIAGNOSIS OF MITRAL STENOSIS

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Mitral stenosis has not been generally regarded as a common valvular lesion. In the examination of 25,813 soldiers, mitral stenosis was diagnosed in 0.56 per cent., while the diagnosis of mitral regurgitation was made in only 0.43 per cent. In a previous communication, the strict criteria used in diagnosing mitral regurgitation were recorded.[1]

The definite recognition of mitral stenosis is based on the presence of a presystolic or diastolic, apical murmur[2] with or without other classical signs or symptoms. The characteristic type of heart's action is a physical sign of paramount importance. In well-marked cases, when there is hypertrophy, the almost ringing first sound, the accentuated second pulmonic, the small pulse and symptoms, the diagnosis is simple. However, in examining young adults from 21 to 31 sent to the various camps by the local boards, these obvious cases are weeded out. There remains a certain number of cases with no symptoms and no cardiac hypertrophy. The latter group requires very careful study. As a class these men are remarkably free from symptoms, and resent not being allowed the privilege of serving. The pulse rate is slow, the response to exercise usually excellent. The diagnosis rests purely on the presence of a presystolic murmur.

The relationship of a history of acute articular rheumatism in these cases was investigated. In 168 cases we obtained a definite history of rheumatic fever in sixty, or 39.1 per cent. From the remainder, histories of sore throats, scarlet fever, pneumonia, smallpox and other infections were obtained.

In order to obtain some comparative figures, 100 normal recruits were questioned for a history of sore throats. Ninety-five gave a definite history and forty-six of such severity as to confine them to bed. By a comparison of statistics, it was impossible to determine a relationship between previous infection and endocarditis. It is obviously unsound, after determining that a patient has mitral stenosis and has had tonsillitis, to say that the tonsillitis is the cause of the endocarditis.

The recognition of the murmur of mitral stenosis in these early cases requires careful study and examination. It has not been my experience that I have been able to diagnose mitral stenosis after exercise that I have not suspected before exercise. It is true, however, that it has been suspected in far more cases than it has been proved, especially in the recruits with tachycardia. In a recruit with a slow-acting heart, with a snappy or split first sound and a ringing second, unless the soldier is exercised, cases will be overlooked. It is necessary to auscultate in the upright as well as in the reclining posture. It is often of service to have the soldier reclining and well over on his left side in order clearly to bring out the murmur. The variability of the murmur is surprising. It may be heard in any posture,, usually best in the reclining. In one instance, it could not be distinguished with a pulse under 100, but was well audible with a pulse over 100.

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[1] Rothschild, Marcus A.: The Diagnosis of Mitral Regurgitation (Valvulitis), J. A. M. A. **72**: 327 (Feb. 1) 1919.

[2] The so-called Flint murmur occasionally heard in aortic insufficiency must be differentiated. This differentiation is a matter of extreme difficulty and is based purely on the personal equation. It is my opinion that a presystolic murmur heard in a definite case of aortic insufficiency would better be regarded as evidence of mitral stenosis when there is a definite history of acute articular rheumatism.

There is, however, a group of cases which I have termed, for lack of a better name, "feeling cases of mitral stenosis." In this group, there is no definite mitral stenotic murmur, but a peculiar ringing or split first sound and an accentuated pulmonic second. Two competent examiners will differ as to the exact diagnosis, one saying the soldier has early mitral stenosis, the other "feeling" he will have it. It is in this group that Morrison's amyl nitrite test is of service. The inhalation of amyl nitrite will definitely bring out a presystolic murmur in some of these cases and in others clear up the first sound. In this group, amyl nitrite inhalations are more valuable than the exercise test. The presence or absence of a thrill is of little value because of the danger of confusion of the presystolic thrill of mitral stenosis with the systolic thrill found so frequently in the overacting heart (the neurocirculatory asthenia complex). This condition has been very frequently confused with that of mitral stenosis. The differential diagnosis should not be difficult. In the early case of mitral stenosis there are none of the peripheral manifestations of neurocirculatory asthenia, the cold, cyanotic extremities, the sweating, etc. In the functional cases there are tachycardia, a poor exercise response, marked liability of the heart's action, frequently a change of rate from 120 to 90 from the upright to the reclining posture, and equally labile blood pressure. In the functional case there is a suggestion of a thrill, a snappy first sound with or without a systolic murmur, and an accentuated pulmonic second sound. Exercising these soldiers has given little assistance in differentiating this condition from mitral stenosis, so far as auscultatory phenomena are concerned. In this group, it is important to auscultate during a period of slow heart action. To obtain this we have employed ocular-pupillary pressure with the soldier in the reclining posture. If an assistant exerts sufficient pressure on both eyes, while one is auscultating the apex, the heart will generally gradually decrease in rate from 120 to 60, the first sound will become clear, and the thrill will disappear. When the same reflex is tried in cases of mitral stenosis, the murmur remains unchanged or is accentuated.

It is not possible to demonstrate cardiac hypertrophy in the majority of these early cases, either by location of the apex beat or by percussion. Electrocardiographic studies on ventricular predominance would be of interest.

The lack of subjective complaints in this group is a matter of great interest. Valuable information could be obtained by following a small group of these soldiers through a period of years. Our knowledge of fully developed disease pictures is becoming fairly replete. However, our knowledge of early disease is still scant. More interest should be taken in this wide field of medicine.

CONCLUSIONS

1. Mitral stenosis is not an uncommon valvular disease in men between 21 and 31.
2. Only 40 per cent. of our cases gave a definite history of acute articular rheumatism.
3. The early cases require careful examination, as the murmur is variable.
4. The presence or absence of a thrill is of little value.
5. It must be differentiated from the overacting heart (the neurocirculatory asthenia complex).
6. Ocular-pupillary pressure has proved of great service in differentiating the two conditions.
7. Morrison's amyl nitrite test is of value in proving the diagnosis in cases in which there are slow acting hearts.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

TANNIN ALBUMINATE EXSICCATED-MERCK.—A compound of tannic acid and albumin, thoroughly exsiccated, and containing about 50 per cent. tannic acid in combination. It was first introduced as tannalbin.

Actions and Uses.—Tannin albuminate exsiccated is astringent. Its use is based on the assumption that the tannin would pass the stomach largely unchanged and thus the astringent action be exercised in the intestine where the compound would be decomposed by the intestinal fluid. It is not likely to produce gastric disturbance. It is used in diarrhea, particularly in that of children and in phthisis.

Dosage.—From 1 to 4 Gm. (15 to 60 grains) in powder or tablets followed by water. For infants the dose is from 0.3 to 0.5 Gm. (5 to 8 grains) in gruel or other mucilaginous liquids.

Merck & Co , New York, distributors. No U. S. patent or trademark.

Tannin Albuminate Exsiccated-Merck Tablets, 5 grains.—Each tablet contains tannin albuminate exsiccated-Merck, 5 grains.

Tannin albuminate exsiccated is prepared by precipitating 10 parts of a 10 per cent. solution of egg albumin with 6.5 parts of a 10 per cent. solution of tannic acid, washing the precipitate with water until the washings react only faintly to ferric chloride, drying it on porous tiles, powdering and heating the product to about 125 C. for six hours.

Tannin albuminate exsiccated is a light brown, odorless, tasteless powder, containing about 50 per cent. of tannic acid. It is practically insoluble in water or alcohol, but slowly soluble in alkaline fluids, which decompose it into its constituents.

Shake 0.1 Gm. of tannin albuminate exsiccated for one-half minute with 10 Cc. of water and filter. To the filtrate add one drop of ferric chloride test solution. Only a slight blue coloration is produced (*tannic acid*).

Incinerate 0.5 Gm. tannin albuminate exsiccated. Not more than 0.2 per cent. of ash remains.

Necessity for Attention to Mental Hygiene.—The United States Census Bureau shows that in 1910 there were 187,791 persons in hospitals for the insane and 20,731 persons in institutions for the feebleminded, and that the aggregate cost to the country of the insane alone is more than $160,000,000. On the basis of the lowest estimate there are two insane and four feebleminded persons in every 1,000 of the general population of the United States. Field investigations by officers of the United States Public Health Service indicate that in schoolchildren the ratio of feebleminded will average eight per thousand. Medical examinations of registrants in the first selective draft showed that out of each 1,000 men examined 24 were rejected on account of nervous or mental disorders, and still others developed such disorders under stress of military training and warfare. Many of the dependent and criminal population suffer from some type of mental disorder, either acquired or hereditary. Of 84,198 persons confined in almshouses in 1910, at least 42,000 had some form of mental alienation; of the 136,472 persons in prisons, jails, work houses and institutions for juvenile delinquents, at least 30,000 were mentally diseased. On the foregoing showing it is said in *Public Health Reports*, Jan. 17, 1917, it is high time for physicians and health officers to take an active interest in mental disease as a public health problem.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 1, 1919

THE CONTRIBUTION OF HOLIDAYS TO NATIONAL VIGOR

The revolutionary changes that the necessities of the war have injected into our national habits and conventional practices have already become the subject of much speculation with respect to their future states. One often hears the query: "Shall we ever return to our former ways?" Particularly true is this in relation to the educational system, notably among the higher institutions of learning, which have responded in a most extraordinary manner to the nation's call for young men trained intensively in special ways to meet war-time emergencies. There has arisen a concentration of effort and a speeding up of schedules utterly unprecedented in the history of such establishments.

We should not be understood to imply that the outcome of this new way of conducting the business of education necessarily represents a beneficent reform. Undertaken to meet an emergency, it has demonstrated the capacity of our institutions to undergo rapid changes and adjustments of plan and policy. Even before any critical evaluation of the results achieved and the possible advantages gained can be attempted, we hear the prophet declaring that this country shall never again revive the slow and easy methods of the past. The catchword "efficiency" is made to work overtime as the keynote of the expected performances of the future. We are warned that the mistakes of the past must not be repeated; that concentration of attention and conservation of the precious days and years are to become standard aims in the reconstruction period, alike in the world of education and in the domain of commerce.

More than one who have observed the actual working out of the new "militarized" procedures in practice have seriously asked themselves whether in the long run such war-time measures can secure peacetime benefactions. The fact that every hour of the day is utilized does not guarantee that it is most advantageously employed. There is such a thing as intellectual indigestion resulting from inordinate concentration. The efficiency of a mechanical or automatic performance can doubtless be increased in large measure by persistently continued practice; on the other hand, there are more distinctly intellectual processes which become impaired unless a reasonable period for reflection and mental recuperation is allowed.

Let us hesitate, therefore, lest we adopt a machine-like scheme too rashly as the basis for the further development of American higher education. The physician has a special concern in the threatened abolition of the institution of holidays. To him who watches the mode of life of his fellow citizens, the beneficence of an occasional holiday has not escaped notice. It need not be debated whether there has been inordinate waste of time in the past; whether the life of many of our citizens, young and old, has not been extravagant in authorized idleness. The institution of suitable holiday periods is for the most part more than likely to make for good. "The right use of a holiday is one of the sovereign secrets in the practice of the noble art of keeping alive." Let us bear this in mind in the discussion of the projects of reconstruction, frankly admitting that leisure is valuable in the long run only if it improves the quality of work. A change of work may become a holiday in essence. The best holiday is not one spent in languid idleness but one that contains the largest amount of new experience. The physician needs such holidays; and in selecting their routine he will do well to observe such holiday experts as the naturalist, the traveler and the historian, rather than the golfer. A holiday, said a capable observer, is not an end in itself, but a means to a general improvement of the working life. The test of whether a holiday has or has not been well used, he added, is the supplement of zest and vigor that it contributes to our proper labors.

FOOD AND BACTERIA—THE NEW BROMATHERAPY

Alimentary bacteriology is in that interesting evolutionary stage when the light of investigation discloses a new picture of possibilities almost as often as it is turned on the subject. One of the newly discovered situations has been presented in an address to the Philadelphia Pathological Society by Professor Kendall[1] of the Northwestern University Medical School:

> The belief that the intestinal flora is fundamentally a physiologic unit rather than a heterogeneous collection of adventitious microbes has afforded opportunity for a new avenue of approach to this complex subject. Viewed from this angle, the kaleidoscopic aggregation of micro-organisms which comprise the *normal* intestinal flora stands in a rather definite relation to the diet of the host. That is to say, as the diet is changed along definite lines a dual bacterial response may be elicited. The types of bacteria may *and* frequently do shift. Those organisms which cannot accommodate themselves to the new nutritive environment *tend* to diminish in numbers, and other, more adaptable, types take their place. A less spectacular but frequently more signifi-

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[1] Kendall, A. I.: Recent Developments in Intestinal Bacteriology, Am. J. M. Sc., **156**: 157, 1918.

> cant response is that in which the products of the metabolic activity of the intestinal microbe change parallel with the nutritional stimulus.

There is something decidedly hopeful in the knowledge that of the many varieties of micro-organisms gaining entrance into the alimentary tract few succeed in establishing themselves. The proof that the intestinal tract may become a veritable graveyard for ingested bacteria must spur us on to discover the mechanism whereby the survival is prevented. Foremost doubtless is the fact that most bacterial species have definite rather than promiscuous food requirements or, at least, preferences. Every one knows, broadly speaking, that whereas sugar is readily attacked by yeast it is not so readily decomposed by bacteria. This is a familiar illustration of microbiotic preferences. Contrary to a widespread belief, the bacterial flora of the alimentary tract is by no means a replica of that of the food we eat. The diet of early infancy is rich in carbohydrate in the form of lactose. The *Bacillus bifidus* then establishes itself in the intestine. As the diet changes with age the colon group of bacteria begins to assert itself, not because coliform organisms dominate in the diet but because they, above all others, thrive as well in a medium from which carbohydrates are absent as in one containing them.

The upshot of what has just been intimated is that no implantation of bacteria in the alimentary tract can be expected to prove permanent unless the diet affords a suitable pabulum for the maintenance of the varieties introduced. The remarkable dietary adjustability of the coliform group serves to explain why it is represented to the extent of nearly 60 per cent. of the viable fecal flora. Bromatology and bromatherapy, the science and art of employing food in suitable ways, find a new field in securing intestinal conditions that will lead definite bacterial groups to survive or perish, even in definite regions of the bowel.

Prolonged changes of diet may do more than change the types of surviving intestinal bacteria. Kendall points out that products arising from the utilization of food for energy by intestinal bacteria are of paramount importance in determining the specificity of action of these microbes. To a limited degree a careful modification of the diet may materially alter the character of these metabolic products, with benefit to the host. In the case of the diphtheria bacillus the cultures in suitable carbohydrate contain no toxin, whereas those cultivated under parallel conditions in mediums without carbohydrate are likely to produce considerable amounts of very potent toxin. In the light of such an illustration is it too much to imagine that the flooding of the digestive canal with appropriate foods might be made to reduce radically the alimentary toxicity of adventitiously implanted pathogenic organisms? The carbohydrate-preferring bacteria of the duodenum differ from those of the lower bowel because their favorite food is still available in the upper reaches of the gastro-intestinal tract. To perpetuate the same, perhaps beneficent, types elsewhere calls for insurance of carbohydrate in the lower portions. How this can be accomplished is a problem of the new bromatherapy. As Kendall remarks, intelligent bacterial implantation presupposes an accurate knowledge of the chemistry of the metabolic products of the bacteria under varying dietary conditions. More knowledge is certain to initiate helpful advances in therapy.

A SIDE LIGHT ON THE PROBLEM OF PERNICIOUS ANEMIA

The genesis of pernicious anemia is assuredly still sufficiently obscure to warrant the consideration of it from every promising aspect. The dictum that the hemolysis which is continually taking place in this disease does not differ in kind from that occurring normally or in certain other disorders, but only in degree, gives emphasis to the significant behavior of the blood cells, without affording a new clue to the possible hemolytic agent. Why does hematogenesis become insufficient to replace the lost corpuscles? What is the origin of the poison—the materies morbi which either acts as a hemolytic agent or as a cause of injury to the hematopoietic organs or both?

An interesting suggestion has lately come from the field of comparative pathology. Among horses there occurs a widespread form of anemia which has been associated with the occurrence of larvae of the fly *Oestrus equi* as parasites in the walls of the stomach.[1] The malady is identical with that familiar to French veterinarians as anémie infectieuse. Seyderhelm,[2] working in Strassburg, has demonstrated that injected extracts of the larvae in question can be made to produce a series of symptoms characteristic of the severer types of anemia. The important observation, however, is that although the larvae contain substances that are hemolytic toward red blood corpuscles in vitro, they also yield extracts that can be purified so as to be free from such directly hemolytic agents, yet highly efficacious in producing characteristic symptoms of severe anemia when the product is introduced into the body.

This raises anew the debated question as to whether the actually potent etiologic factor in pernicious anemia is a hemolytic poison or whether the anemia is a consequence of less direct reactions of the causative agent.

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1. Seyderhelm, K. R., and Seyderhelm, R.: Die Ursache der perniziösen Anamie der Pferde, Arch. f. exper. Pathol. u. Pharmakol. **76:** 149; Wesen, Ursache und Therapie der perniziösen Anämie der Pferde, Arch. f. wissensch. u. prakt. Tierheilkunde **41:** 1914; Experimentelle Untersuchungen über die Ursache der perniziösen Anämie der Pferde, Berl. tierärztl. Wchnschr., 1914, No. 34. Seyderhelm, R.: XVII Tagung der Deutsch. path. Gesellsch., 1914.
2. Seyderhelm, R.: Ueber die Eigenschaften und Wirkung des Oestrius und seine Beziehung zur perniziösen Anämie der Pferde, Arch. f. exper. Path. u. Pharmakol. **82:** 253, 1918.

It has frequently been suggested that the anemia produced by the intestinal parasite *Bothriocephalus* and closely resembling the classic "pernicious" anemia is attributable to a hemolytic lipoid shown to be present in the animal; but objection has been raised to the identification of hemolytic lipoids as the sole cause of blood destruction in the severe anemias, for the organism is well equipped with antagonists to such lipoids. The case of the fly larvae has furnished the highly significant fact that whereas the hemolytic lipoids obtained from them fail to produce any serious illness after introduction into the body, the nonhemolytic fractions of larval substance are exceedingly potent. However promising the lipoid hypothesis has been in the attempt to elucidate the genesis of pernicious anemia, it must no longer be allowed to overshadow consideration of other hypothetic specific poisons, whether they are assumed to be of intestinal, metabolic or entirely extraneous origin.

MALT PREPARATIONS AND CALCIUM METABOLISM IN INFANCY

Malt preparations have enjoyed considerable popularity for some time in the feeding of infants. One of the familiar mixtures is the so-called malt soup, the use of which was modified by Keller of the University Clinic for Children at Breslau to include potassium carbonate. Various claims have been made for seemingly empiric combinations. The assimilability of the malt sugar has been highly lauded, though the evidence for this alleged superiority over other available carbohydrates is by no means overwhelming, however probable it may seem on theoretical grounds. Maltose has been vaguely stated to be indicated in the constipation of infancy. In actual feeding practice, good gains of weight have often been reported as attending the use of Keller's formulas, and the further assertion has been made that the retention of calcium so essential to the growth of the skeleton is thereby facilitated.

How little has been determined definitely regarding the utilization and metabolism of calcium in infancy becomes apparent from the study of the recent controversial literature on the subject.[1] Hence we may be prepared for debated statements with respect to the possible rôle of malt preparations aside from their value as sources of simple carbohydrates. Dubois and Stolte[2] attributed the favorable effect of Keller's malt soup on calcium retention to the alkali that it contains. They argued that the latter contributes to the neutralization of the acids formed in metabolism and thus prevents the loss of calcium for this purpose.

In experiments on animals, Givens and Mendel[3] at Yale University failed to find that administration of a base like sodium carbonate produced any significant effect on the balance of calcium. More recently, Sato[4] has reported from the Department of Pediatrics of Johns Hopkins University that in a normal infant the addition of alkali to milk produces not only no favorable effect on the retention of calcium but a distinctly unfavorable one.

According to Sato, however, malt extract alone without alkali acts beneficially on calcium storage. If malt soup has a favorable effect on calcium metabolism, it is not as a result of the alkali originally contained in it or added to it. Malt extract to which a considerable amount of alkali has been added seems to have a rather unfavorable influence on the calcium balance. There is at present no reason to attritbute the seemingly substantiated benefit of malt preparations on calcium storage to the malt sugar per se. It must be remembered that malt extracts are somewhat heterogeneous in composition. And the statement of Bosworth and Bowditch[5] of Boston that ingestion and absorption of unduly large amounts of calcium salts may under certain conditions of inadvisable feeding promote toxic results in infancy indicates how far we are from final conclusions as to the rationale of the subject.

Current Comment

THE CREATININ CONTENT OF THE BLOOD AS A PROGNOSTIC INDEX IN NEPHRITIS

The improvements introduced in recent years into the methods of analyzing small quantities of blood have made it possible to obtain more exact knowledge regarding many of the chemical changes attending important diseases. Our readers are presumably familiar with the innovations that have contributed to a better understanding in respect to both diagnosis and prognosis in such instances as diabetes, gout, nephritis and uremia. The methods of blood analysis are taking their place side by side with other procedures, such as the phenolsulphonephthalein and related tests, for ascertaining the functional excretory capacity of the kidneys. The damaged eliminating power of these organs seems to be manifested first of all by an increase in the uric acid content of the blood. A greater renal insufficiency is exhibited when there is unmistakable retention of urea. Creatinin is the last of the familiar nonprotein nitrogenous constituents to show accumulation in the blood. In other words, creatinin appears to be the most readily eliminated of the commonly ascertained metabolites. Myers[1] and his co-workers at the New York Post-Graduate Medical School laboratories have argued that, theoretically, the amount of the increase of the creatinin in the blood should be a safer index of the decrease in the permeability of the kidneys than the urea for the reason that creatinin on a meat free diet is entirely endogenous in origin, and its formation (and elimination normally) very constant. Myers and Killian[2] appear to have furnished substantial clinical evidence for the belief that the kidneys are rarely able to overcome "the handicap of a high creatinin accumulation." Out of ninety-four cases of nephritis with blood creatinin values of 5 mg. or more per hundred c.c., improvement almost never followed, and early death was the usual outcome. On the other hand, patients with high figures for urea, but without marked creatinin retention, generally showed improvement. Hence the investigators, who have had exceptional opportunities to study the subject, employing methods that they have long practiced, came to the conclusion that the creatinin data gave them a better prognostic insight into doubtful cases than did either the blood urea figures or the more popular phenolsulphonephthalein tests, which were made simultaneously.

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[1] Holt, L. E.; Courtney, A. M., and Fales, H. L.: Is the Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? Am. J. Dis. Child., **16:** 52 (July) 1918. Bosworth, A. W.; Bowditch, H. I., and Giblin, L. A.: Ibid. **16:** 265 (Oct.) 1918. Bosworth, A. W., and Bowditch, H. I.: High Protein Feeding Versus High Calcium Absorption as the Cause of the Increase of the Body Temperature of Infants, ibid. **16:** 279 (Nov.) 1918.

[2] Dubois, M., and Stolte, K.: Jahrb. f. Kinderh. **77:** 21, 1913.

[3] Givens, M. H., and Mendel, L. B.: Studies in Calcium and Magnesium Metabolism, I, The Effects of Base and Acid, J. Biol. Chem. **31:** 421, 1917.

[4] Sato, Akira: The Effect of Alkali and Malt Preparations on the Retention of Calcium in Infancy, Am. J. Dis. Child. **16:** 293 (Nov.) 1918.

[5] Bosworth, A. W., and Bowditch, H. I.: Studies of Infant Feeding, XI, High Protein Feeding Versus High Calcium Absorption as the Cause of Increase in Body Temperature of Infants, Am. J. Dis. Child. **16:** 279 (Nov.) 1918.

THE APPEARANCE OF LACTIC ACID IN ALKALOSIS

The responses of the organism to a condition of acidosis are becoming quite well known. In order to prevent the hydrogen-ion concentration of the blood from being materially increased, excess of acid radicals in the form of phosphates may be excreted by the kidneys, ammonia may be requisitioned to act as a neutralizing agent, or the alkali reserve of the blood plasma may be called on to combat the tendency to blood changes in the direction of greater acidity. Now that a reverse condition, that of alkalosis, has been described as an actual physiologic and clinical entity, it is natural to inquire as to the possible nature of the acid reserves available when the hydrogen-ion concentration for any reason tends to become less than normal. There is experimental reason for believing that less ammonia appears as an incident to acid neutralization. But according to recent observations by Macleod and Knapp[3] at the Western Reserve University School of Medicine, unoxidized acids, such as lactic acid, also are used for such adjustments in the organism. One might expect that when an excess of alkali is thrown into the blood it would be neutralized by carbon dioxid. The new studies indicate, however, that to prevent an accumulation of carbonates the organic acids may come into play. Thus injection of alkali causes lactic acid to appear in considerable quantity in the urine, and this may occur without any perceptible change in the hydrogen-ion concentration of the blood. The quantity of lactic acid recoverable during the period of alkali injection is insufficient to account for more than 5 or 6 per cent. of the administered alkali. Furthermore, alkali given by stomach in sufficient amounts to cause a disturbance in the acid-base equilibrium of the body, as evidenced by changes in hydrogen-ion concentration, in the ammonia excretion and in the titrable acidity of the urine, causes a slight increase in what is presumably lactic acid in the latter fluid. Evidently the protective devices of the body in such phenomena as the maintenance of the delicate acid-base equilibrium of the body are not yet recognized in their entirety.

MEDICAL COOPERATION IN THE SELECTIVE SERVICE SYSTEM

The second report of the Provost Marshal-General to the Secretary of War covering the operations of the selective service system to Dec. 20, 1918, has just been made available. The interest physicians have taken in the work, and the service they have rendered in the various boards connected with the selective service system, gave assurance that much in this report would concern the medical profession. This prophecy is fulfilled. A few instances: Medicine is credited with supplying 4,246 of the 13,564 members of the local boards (31.3 per cent.); in addition, there were established 155 district boards on each of which there was at least one physician, and 1,319 medical advisory boards with a personnel of 9,577. The organized medical profession will appreciate the following statement:

> At this point a tribute is due to the American Medical Association. From this association came the suggestion for medical advisory boards and cordial assistance in their selection. The Journal of the American Medical Association, with a circulation of 66,000 copies, has been a valuable medium of information between this office and the medical men who discharged the duties of the profession to the government through the draft. The medical profession has responded and served in a devoted manner that has received universally favorable comment. It is gratifying to note the part which the Association has taken in thus assisting to raise our great army, as well as its valuable contribution to the war generally.

THE SUPPLY OF NURSES

In the Correspondence department of this issue are two letters relative to bills recently introduced in the legislature of Illinois to provide for the regulation of nursing. They discuss a question that is of national interest, as is evidenced by letters which have been published from Maine, Rhode Island and New Jersey, and also by radical legislation which has been introduced in Massachusetts. One need at least is clear—a greater supply of well educated nurses must be provided. No doubt a way will be found, without placing too severe a burden on either the nurses, physicians, hospitals or nurse training schools, to provide for the nursing needs of the public, which primarily is interested in the regulations that will be enacted.

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[1] Myers, V. C.; Fine, M. S., and Lough, W. G.: The Significance of the Uric Acid, Urea and Creatinin of the Blood in Nephritis, Arch. Int. Med. **17**: 570 (March) 1916. Myers, V. C., and Lough; W. G.: The Creatinin of the Blood in Nephritis: Its Diagnostic Value, ibid. **16**: 536 (Oct.) 1915.

[2] Myers, V. C., and Killian, J. A.: The Prognostic Value of the Creatinin of the Blood in Nephritis, Proc. Soc. Exper. Biol. and Med. **16**: 41, 1918.

[3] Macleod, J. J. R., and Knapp, H. J.: The Influence of Alkali Administration on the Urinary Excretion of Lactic Acid, and the Possible Significance of the Latter in Maintaining Neutrality in the Body, Am. J. Physiol. **47**: 189, 1918.

Association News

THE ATLANTIC CITY SESSION

Announcement of Personnel of the Local Committee on Arrangements

The following Local Subcommittee on Arrangements for the Seventy-First Annual Session of the American Medical Association to be held in Atlantic City, June 9-13, has been *announced*: Emery Marvel, chairman; Henry T. Harvey, secretary; Edwin H. Harvey, treasurer.

CHAIRMEN OF SUBCOMMITTEES

Finance	W. Blair Stewart
Entertainment	C. Coulter Charlton
Section Entertainment	Samuel Barbash
Hotels	David B. Allman
Halls and Meeting Places	W. J. Carrington
Section Meetings	Byron G. Davis
Program	Clarence L. Andrews
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Badges	William W. Fox
Scientific Exhibit	Samuel Stern
Registration	David Berner
Information	Milton S. Ireland
Alumni Entertainments	Worth Clark
Post Office and Telephones	D. Ward Scanlan
Commercial Exhibit	Isaac E. Leonard
Golf	Walter Ponder Conaway
Women Physicians	Clara K. Bartlett
Ladies' Committee	Mrs. Gurney Williams

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending February 20, the Medical Corps contained 21,951 officers, a decrease from the previous week of 354. The Medical Reserve Corps contained 763 officers. The total number of medical officers discharged since the beginning of the war is 11,781.

Slightly Wounded

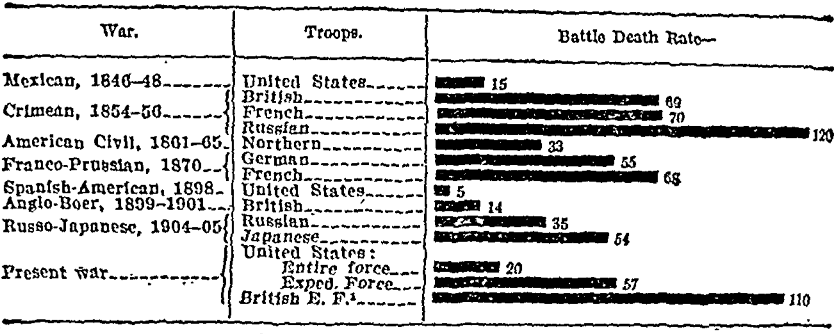
The following medical officers have been reported as having been slightly wounded: Richard S. Magee, Lieut., Altoona, Pa.; James P. H. Ruddy, Lieut., Scranton, Pa.; Fred A. Lieuallen, Capt., Portland, Ore.; Edward J. Meley, Lieut., Ludlow, Pa.; Ray H. Humphrey, Capt., Union, N. Y.; Emanuel Goldstein, Major, Brooklyn; William O. Kleinstuber, Lieut., Wilmington, Del.; Frank T. Duffy, Lieut., Charleston, Ill.; Frank Hurwitt, Capt., St. Louis; Thomas L. Doyle, Lieut., Tremont, Pa.; Alexander W. Seibert, Lieut., Washington, Mo.; William H. Sloan, Lieut., Garland, N. C.; George C. Skinner, Capt., Cedar Rapids, Iowa; William George Byrd, Capt., Belzoni, Miss.; Royal H. McCutcheon, Capt., Franklin, Va.; Raymond Lynde Wadhams, Capt., Wilkes-Barre, Pa.; Jerome Meyer, Lieut., Uniontown, Ala.; George M. Shewalter, Lieut., Indianapolis; Charles James Roach, Lieut., Zanesville, Ohio; Charles Edward McClelland, Major, Columbus, Ohio; John S. Rakin, Capt., Portland, Ore.; Joseph T. Brennan, Lieut., Vichy, Mo.

Wounded, Degree Undetermined

The following medical officers have been wounded (degree undetermined): Edgar W. Roberts, Capt., West New York, N. J.; William Bransford York, Lieut., St. Louis; Richard Sharpless Davis, Major, Germantown, Philadelphia; Renel A. Pierce, Lieut., Mass. N. G., Taunton, Mass.; Eli B. Moss, Capt., Chicago; Theodore L. Pulvermacher, Lieut., Brooklyn; Lawrence L. Keller, Lieut., McMinnville, Tenn.; Lloyd R. Mace, Lieut., Hollywood, Calif.; Arthur Blaine Gjellum, Capt., Brighton, Colo.; Samuel L. Ridge, Capt., Langhorne, Pa.; Albert Herman Hundermark, Lieut., Chicago; Israel Laurier, Lieut., Worcester, Mass.; William C. Stiff, Capt., Plymouth, Pa.; William V. Kane, Lieut., Lynn, Mass.; Henry K. Dillard, Capt., Philadelphia; Claude C. Lyon, Lieut., Logan, Ohio; Edwin Wilson Goodman, Capt., Jersey City, N. J.; Gustave E. Eck, Capt., Lake Mills, Wis.

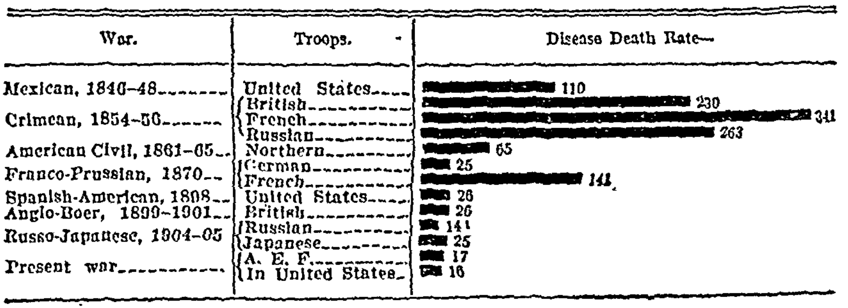
Death Rates in Disease and Battle

In his interview, published Saturday, February 15, in the *Official Bulletin*, General March calls attention to the report of disease and death rates issued by the statistics branch of the General Staff. The death rate from disease among our troops in this war was lower than in any previous war, and this is the first war in which the United States has been engaged in which fewer men were lost from disease than from battle. The low disease rate is attributed in part to the inoculation of troops against certain diseases. Had it not been for the influenza epidemic, the rate would, of course, have been much lower. In the total forces the battle death rate was 20 per thousand per year; the rate of the Expeditionary Forces alone is 57 per thousand per year, which is *one half* of the annual death rate in the British Expeditionary Forces. The accompanying charts, taken from the *Official* Bulletin of February 17, give further figures relative to comparative disease and battle death rates in the present and in previous wars.



¹ Estimate based on incomplete data.

Chart 1.—Battle death rates per thousand per year in recent wars. Accurate strength figures for previous wars are difficult to obtain. In most cases the rates given are probably based on total forces under arms. In this and the accompanying charts, the source of information has been: Comparative mortality of Disease and Battle Casualties (*Seaman Prize Essay*), Capt. L. C. Duncan, M. C., U. S. Army; G-1, G. H. Q., A. E. F.; Statistical Division, A. G. O., and Division of Sanitation, S. G. O.



¹ Based on doubtful data.

Chart 2.—Disease death rates per thousand per year in recent wars.

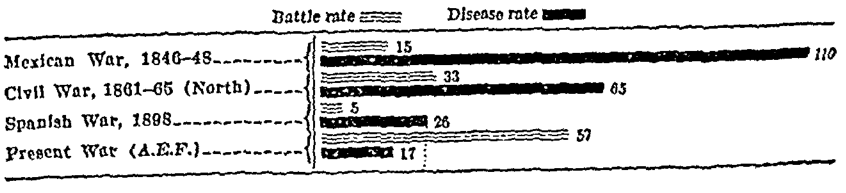


Chart 3.—United States battle and disease death rates per thousand per year.

Prisoners Released

The following officers reported as prisoners have been released from the German prison camp: E. J. Presper, Capt., Philadelphia.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel; and B. G., brigadier-general.

ALABAMA

Albany—Murray, M. W. (M.)
Birmingham—Prince, E. M. (C.)
Ensley—Tedder, C. E. (L.)
Sulligent—Hollis, D. L. (L.)

ARKANSAS

Elm Springs—Graves, H. W. (C.)
Hope—Smith, D. (L.)
Hot Springs—Strachan, J. B. (L.)
Marianna—Wall, E. D. (L.)
Mena—Hawkins, B. H. (C.)

CALIFORNIA

Ione—Robinson, C. A. (L.)
Lockeford—Priestley, W. F. (L.)
Los Angeles—Benthius, F. A. (C.)
Oleander—Hardie, W. B. (L.)
Orland—Martin, D. L. (M.)
Palo Alto—Von Geldern, C. E. (L.)
San Francisco—Folte, A. G. (L.)
Read, J. M. (C.)

COLORADO

Denver—McKenzie, C. D. (C.)
Florence—Hutton, V. A. (C.)
Fort Morgan — Benawa, W. G. (L.)

CONNECTICUT

New Canaan—Bennett, E. S. (L.)
New Haven—Burke, W. P. (C.)
Foley, F. E. (L.)
Kiernan, E. C. (L.)
Waterbury—Farrell, J. E. (C.)

FLORIDA

Jacksonville—French, E. D. (L.)
St. Petersburg—Lambdin, L. (M.)

GEORGIA

Atlanta—Wood, E. B. (L.)
Hartwell—Barton, D. J. (L.)
Ray City—Rentz, L. S. (L.)
Thomasville — Little, A. D. H. (C.)
Tifton—Hendricks, W. H. (C.)
Zebulon—Hartley, J. M. (L.)

IDAHO

Sandpoint—McKinnon, M. (C.)
Winchester—Kelly, J. L. (C.)

ILLINOIS

Bloomington—Deneen, F. (L.)
Canton—Hays, T. C. (C.)
Cairo—Bondurant, F. (L.)
Chicago—Cornell, J. W. (C.)
Edison, S. M. (C.)
Garard, J. C. (L.)
Glover, C. W. (L.)
Logan, W. H. G. (Col.)
McLaughlin, J. W. (L.)
Rotman, D. B. (L.)
Sarginson, R. B. (L.)
Slavik, E. F. (L.)
Vaughan, R. T. (C.)
German Valley — Miller, P. M. (L.)
Granite City—Reuss, H. P. (L.)
Hebron—Bailey, C. W. (C.)
Rockford—Ackemann, H. W. (L.)
Walnut—Forney, G. V. (L.)

INDIANA

Brazil—Pell, H. M. (L.)
Converse—Brookie, R. W. (L.)
Craigsville—Somers, L. E. (L.)
Evansville—Hurst, W. R. (L.)
Indianapolis—Carter, J. C. (L.)
Lafayette—Clapper, M. M. (C.)
Waymansville—Maris, J. I. (L.)
Waynetown — Bounnell, H. M. (C.)

IOWA

Dubuque—Cantonwine, E. A. (C.)
Moes, M. J. (C.)
Fort Dodge—Chase, S. B. (L.)
Lake City—McVay, M. J. (L.)
Monticello—Stuhler, L. G. (L.)
Sioux City — Hagedorn, H. H. (L.)
Shuman, J. W. (M.)

KANSAS

Altoona—Kennedy, J. G. (C.)
Atchison—Bribach, E. J. (L.)
Burr Oak—O'Leary, A. J. (L.)
Coffeyville—Johnson, E. W. (L.)
Topeka—Stewart, R. B. (C.)

KENTUCKY

Buechel—Rush, W. M. (C.)
Cynthiana—Morgan, J. F. (L.)
Lexington — Pohlmeyer, H. F. (L.)
Louisville—McKenna, H. J. (C.)
Owensboro—Griffin, R. E. (C.)
Shelbyville—Lawrence, G. (C.)
Sorgho—Filiatreau, R. N. (L.)
Valley View—Bailey, N. A. (L.)
Washington—Berry, I. (L.)
Worthville—Driskell, E. B. (L.)

LOUISIANA

Bunkie—Martinez, R. D. (L.)
Derry—Hankins, W N. (L.)
La Fayette—Daley, O. P. (L.)
New Orleans—Bahn, A. J. (L.)
Rayne—Webb, R. C. (L.)

MASSACHUSETTS

Boston—Ellsworth, S. W. (M.)
Greenwood, A. (L. C.)
Scannell, D. D. (M.)
East Northfield—Philbrick, R. H. (L.)
Leominster—Grady, J. E. (L.)
Lynn—O'Keefe, E. S. (L.)
Marblehead—Eveleth, S. C. (L.)
Springfield—Goodell, W. (C.)
Worcester—Ward, J. C. (L.)

MICHIGAN

Ann Arbor — Vaughan, V. C. (Col.)
Detroit—Clarke, D. M. (L.)
Monroe, J. D. (L.)
Frankfort—Doyle, C. P. (L.)
Galien—Snowden, R. H. (L.)
Holland—Boone, C. E. (L.)
Lansing—Miller, H. A. (L.)

MINNESOTA

Mankato—Liedloff, A. G. (M.)
Minneapolis—MacDonald, D. A. (L.)
Mann, A. T. (M.)
Montevideo—Lima, L. R. (L.)
Rochester—Clark, C. M. (L.)
Moore, A. B. (C.)

MISSISSIPPI

Charleston—Priddy, H. W. (L.)
Cleveland—McLean, E. R. (C.)
Meridian—Tate, M. (L.)
Touchstone, A. G. (L.)
Reid—Coley, S. W. (L.)
Ruleville—Pittman, C. J. (L.)
Vosburg—Walker, D. L. (C.)

MISSOURI

Kahoka—Johansen, F. A. (L.)
Kansas City—Hines, W. H. (L.)
Knox, A. C. (C.)
Maryville—Dean, L. E. (L.)
Milan—Porter, E. S. (C.)
St. Joseph—Bertram, C. W. (C.)
Minton, W. H. (C.)
Werner, C. H. (C.)
St. Louis—Davis, B. (L.)
Gayler, W. C. (C.)
Murphy, E. S. (L.)

MONTANA

Havre—Houtz, C. S. (L.)

NEBRASKA

Dawson—Fouts, R. W. (L.)
Omaha—Henry, W. P. (C.)
Wilsonville—DeMay, G. H. (L.)

NEW HAMPSHIRE

Dover—Goddard, F. C. (L.)
Exeter—Knowlton, J. G. W. (M.)
Manchester—Webber, N. B. (C.)

NEW JERSEY

Asbury—Moore, E. H. (L.)
Bloomfield—Thompson, P. B. (C.)
Grantwood—Fessler, W. (L.)
Newark—Woodhouse, A. (L.)
Penns Grove—Jarratt, R. B. (L.)
West New York—Coulter, L. M. (L.)

NEW YORK

Albany—Carmody, D. F. (L.)
Lyons, J. S. (L.)
Brooklyn—Harris, H. C. (L.)
Morrison, R. P. (L.)
Roth, A. (L.)
Sumner, I. E. (L.)
Buffalo—Buckley, P. H. J. (L.)
Kohlhas, J. J. (L.)
Plummer, W. W. (M.)
Freeport—Miller, W. G., Jr. (L.)
Hempstead—Combes, S. A., Jr. (L.)
Mohawk—Brooks, W. B. (C.)
Mount Vernon—Gebhard, K. (L.)
New York—Anderson, J. (L.)
Bingham, F. E. (L.)
Bondy, J. (L.)
Brody, S (L.)
Derby, R. (L. C.)
Fuller, E. (C.)
Gilliam, D. B. (L.)
Grumley, J. G. J. (L.)
Harris, T. J. (L. C.)
Kulkin, S. (L.)
Kutisker, M. J. (L.)
Maloney, E. R. (L. C.)
McKernon, J. F. (Col.)
Muller, E. A. (C.)
Prioleau, P. (C.)
Schenectady—Faust, W. P. (M.)
Staten Island Renwick, R. W. (L.)

NORTH CAROLINA

Salisbury Rozzelle, J. H (L.)
Tryon—Palmer, M. C. (C.)

NORTH DAKOTA

Williston—MacManus, F. W. (C.)

OHIO

Canton—Kramer, J. G. (L.)
Cleveland—Tippie, J W. (C.)
Columbus—Edwards, J. C. (L.)
Gallipolis—Holzer, C. E (L.)
Leetonia—Hennen, L. S. (L.)
Mansfield—Jelliffe, M B (L.)
Middletown—Bauer, E. O. (C.)
Mount Sterling—Wittich, R B. (C.)
Rossford—Crossett, H. A. (L.)
Sycamore — Montgomery, C. W. (L.)
Toledo—Hammer, I. H. (C)
Smead, L. F. (C.)
Ward, E. F. (L.)
West Alexandria—Hunter, A. C. (L.)
White House—DeVore, F. F. (L.)
Willard—McCreight, G. C. (L.)
Wilmington—Davis, J. I. (L.)

OKLAHOMA

Hominy—Mullins, I. (L.)
Oil Hill—Baird, W. G. (M.)
Oilton—Noah, J. H. (L.)
Picher—Williams, J. C. (L.)
Tulsa—Douglas, R. A. (L.)

OREGON

Portland—Sellwood, J. J. (M.)

PENNSYLVANIA

Gettysburg—Dickson, J. M. (L.)
Kennett Square—Schwegler, J. J. (L.)
Kittanning—Deemer, P. R. (L.)
Manheim—Guie, P. F. (C.)
Middletown—Swartz, O. H. (L.)
Mont Alto—Teplitz, M. M. (L.)
[illegible] G. H. (C.)
[illegible] D. (L.)
[illegible] C.)
Walker, H. (C.)
Pittsburgh—Barach, J. H. (C.)
Eyman, W. G. (C.)
Goldstein, H. R. (L.)
Milford, L. W. (L.)
Truschel, E. J. (L.)
Pottstown—Mauger, L. W. (L.)
Prosperity—Cary, J. H. (C.)
Reading—Leiser, W., 3d (L.)
Scranton—Sweeney, L. G. (L.)
Selinsgrove—Johnston, R. W. (L.)
Tarentum—Leydic, C. L. (C.)
Telford—Paulus, C. A. (L.)

RHODE ISLAND

Providence—Rain, J. E. (L.)

SOUTH CAROLINA

Charleston—Cathcart, R. S. (M.)

SOUTH DAKOTA

Canton—Parke, L. L. (L.)
Wessington—McKie, J. F. (C.)
Yankton—Hohf, S. M. (C.)

TENNESSEE

Ducktown—Hewson, W. J. (L.)
Memphis—Walker, H. L. (C.)
Nashville—Floyd, W. O. (C.)
Saint Elmo—Davis, M. D. (L.)

TEXAS

Beaumont—Pedigo, H. B. (C.)
Bonham—Kennedy, A. B. (M.)
Corsicana—Newton, E. H. (L.)
De Leon—Rush, H. P. (L.)
Lancaster—Wilson, J. E. (L.)
Mabank—Thomas, W. M. (L.)
McGregor—Blailock, H. F. (C.)
Mosheim — Blankenship, W. W. (L.)
San Antonio — Jackson, T. T. (M.)
Temple—Cook, T. E. (L.)
Vernon—King, T. A. (L.)
Waco—Brannon, E. C. (C.)

VERMONT

Burlington—Hunter, J. A. (L.)
Montpelier—Burr, C. H. (C.)
Rochester — Huntington, W. M. (L.)

VIRGINIA

Dorchester—Faust, G. T. (L.)
Lynchburg—Plunkett, F. O. (L.)
Richmond—Hagan, M. G. (L.)
Williamsburg — Jennings, C. W., Jr. (L.)

WASHINGTON

Olympia—Longaker, F. A. (L.)
Seattle—Bordsen, T. L. (L.)
Spokane — Schwabland, W. T. (L.)

WEST VIRGINIA

Charleston—MacQueen, G. A. (C.)
Paden City—Keifer, B. (C.)
Spencer—Dodson, R. (L.)
Weston—Burton, S. H. (C.)
Wheeling—Abersold, G. W. (L.)

WISCONSIN

Milwaukee—Fidler, C. A. (C.)
Ripon—Senn, C. U. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ALABAMA

Birmingham—Walsh, G. F.

CALIFORNIA

Los Angeles—Miller, F. W.
Richardson, W. W.
San Francisco—Cowan, J. F.
Galbraith, F. B.
Gilman, P. K.
Hewlett, A. W.
Santa Barbara—Brown, R.

CONNECTICUT

Bridgeport—Zoon, S. L.

FLORIDA

Tampa—Beyer, A. R.

ILLINOIS

Rock City—Butterfield, C. F. M.

MAINE

Fort Fairfield—Wyndham, C. A.
Machias—Larson, O. F.

MASSACHUSETTS

Boston—Applebaum, J.
Tully, G. L.
Holyoke—Cleary, R. E.
New Bedford—Clifford, R.
Provincetown—Curley, C. P.

MICHIGAN

Detroit—LaFerte, A. D.
Houghton—Malfraid, B. W.

MINNESOTA

Minneapolis—Anderson, E. D.

MISSOURI

St. Louis—Taylor, T. W.

NEVADA

Reno—Samuels, W. L.

NEW JERSEY

Atlantic City—Charlton, C. C.
Jersey City—Andreae, P. O. M.

NEW YORK

Brooklyn—Brinsmade, W. B.
Graham, J. C.
Lohman, W. H.
Long, J. H.
Rushmore, C. J.
Von Deylen, G. D.
Mount Vernon—Brown, R. H.

New York—Bainbridge, W. S.
Bassin, J. N.

OHIO

Defiance—Rieckhoff, F. A.

OKLAHOMA

Enid—Hinson, T. B.
Erick—Yarbrough, J. E.

PENNSYLVANIA

Philadelphia—Baldi, F. S.
Clay, J. V. F.
Gyles, R. C.
Harrison, F. G.
Hewson, W.
Jones, J. F. X.

Pittsburgh—Clark, N. H.
McCullough, J. F.
Weber, J. J.

SOUTH CAROLINA

Charleston—Framtpon, W. H.

TENNESSEE

Franklin—Walker, J. O.

TEXAS

Dallas—Millwee, R. H.
Houston—Clarke, J. E.

WISCONSIN

Milwaukee—Decker, H. G.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Sherman, Ohio, base hospital, from Hot Springs, Lieut. C. H. DRAKE, Birmingham.

To Fort Oglethorpe, from Camp Devens, Capt. J. H. EDMONSON, Birmingham.

Arkansas

To Arcadia, Fla., Carlstrom Field, from Lonoke, Lieut. D. R. WILSON, Fayetteville.

To Camp Pike, Ark., base hospital, from Camp Logan, Capt. J. E. CASHIN, Dierks.

California

To Camp Beauregard, La., from Camp Kearney, Major G. D. FRANCE.

To Camp Devens, Mass., base hospital, from Camp Meade, Lieut. D. E. SHEA, Los Angeles.

To Denver, Colo., from Vancouver Barracks, Capt. O. O. YOUNG, Whittier.

To Fort Douglas, Utah, from Camp Lewis, Capt. W. C. MABRY, Tropico.

To Fort McDowell, Calif., from Camp Kearney, Major C. M. HUNTER.

To San Francisco, Calif., from Camp Lee, Major A. J. WILKINSON, San Diego; Capts. M. H. ETCHEVERRY, San Francisco; G. S. HERBERT, Santa Paula. Letterman General Hospital, from Camp Dix, Capts. C. W. MACK, Livermore; S. BUNNELL, *San Francisco; from* the Surgeon-General's Office, Major W. B. BOWMAN, Los Angeles.

To Washington, D. C., and on completion *to San Francisco, Calif.,* Letterman General Hospital, from Camp Dix, Lieut.-Col. H. C. NAFFZIGER, San Francisco.

Canal Zone

To Philippine Department, from Camp Sheridan, Lieut. W. B. FOSTER, Jr., Ancon.

Colorado

To Fort McHenry, Md., from Fort Logan, Lieut. C. W. METZ, Denver.

To Fort McPherson, Ga., from Fort Bliss, Lieut. L. G. BROWN, Colorado Springs.

The following order has been revoked: *To Camp Gordon, Ga.,* base hospital, from Camp Sherman, Lieut. G. L. SHARP, Colorado Springs.

Connecticut

To Cape May, N. J., from Camp Dix, Lieut. H. G. JARVIS, Hartford.

To New Haven, Conn., from McClellan, Lieut. T. P. MURDOCK, Meriden.

District of Columbia

To Camp Upton, N. Y., from Fort Sill, Lieut. A. F. ROCHE, Washington.

To Hoboken, N. J., from Hot Springs, Capt. A. M. MacNAMEE, Washington.

To New Haven, Conn., from Camp Pike, Major A. G. COMPTON, Washington.

To the retired list, from San Francisco, Col. L. M. MAUS, Washington.

To Walter Reed General Hospital, D. C., from Camp Dix, Capt. J. D. THOMAS, Washington; from Hot Springs, Lieut. F. T. CHAMBERLIN, Washington.

Florida

To Camp Dix, N. J., base hospital, from Camp Jackson, Lieut. R. H. KNOWLTON, St. Petersburg.

To Hoboken, N. J., from Camp Dix, Capt. H. C. VON DAHM, Jacksonville.

Georgia

To Fort McHenry, Md., from Hot Springs, Lieut. M. BLANCHARD, Columbus.

The following order has been revoked: *To San Francisco, Calif.,* from Fort Oglethorpe, Capt. B. MASSEY.

Kansas

To Camp Jackson, S. C., base hospital, from Camp Greene, Major S. H. MARTIN, Cambridge.

To Fort Riley, base hospital, from Fort Des Moines, Lieut. A. LEUCYER, Aurora.

To San Francisco, Calif., as department surgeon, from Fort Riley, Col. E. B. FRICK.

Kentucky

To Camp Sherman, Ohio, to examine the command for cardiovascular diseases, from Camp Pike, Capt. C. D. MORRIS, Louisville.

To Fort McHenry, Md., from Hot Springs, Capt. J. H. HOHNSTEDT, Fort Thomas.

To Hoboken, N. J., from Camp Jackson, Lieut. A. D. ECHERT, Newport.

To Washington, D. C., from Fort Oglethorpe, Capt. G. F. DOYLE, Winchester.

Illinois

To Aberdeen, Md., from Camp Cody, Lieut. N. COPELAND, Chicago.

To Camp Abraham Eustis, Va., to examine the command for cardiovascular diseases, from Camp Pike, Capt. W. H. BURMEISTER, Chicago.

To Camp Custer, Mich., base hospital, from Camp Wadsworth, Lieut. M. J. KOSTREWSKI, Chicago.

To Camp Grant, Ill., base hospital, from Camp Dix, Lieut. C. S. BOWMAN, Alsey; from Camp Knox, Lieut. G. D. BRAND, Chicago.

To Camp Lewis, Wash., as tuberculosis examiner, from Vancouver Barracks, Lieut. V. MAURICAU, Rockton.

To Camp Sheridan, Ala., base hospital, from Hot Springs, Lieut. G. C. CONLIN, Springfield.

To Camp Travis, Texas, from Camp Cody, Lieut. P. D. LYONS, Chicago.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Major W. H. WATTERSON, Chicago; Lieuts. W. S. NEEDHAM, Hanna City; J. L. ANDERSON, Winfield.

To Chicago, Ill., from Camp Dix, Major P. OLIVER, Chicago.

To Eastview, N. Y., from Camp Dix, Major R. M. RITCHEY, Elgin.

To Fort McHenry, Md., from Lakewood, Lieut. O. C. HYSLOP, Chicago.

To Fort Sheridan, Ill., from Camp Pike, Lieut. J. P. O'NEIL, Highland Park; from Camp Upton, Lieut. J. J. McCARTY, Jr., Chicago; from Rockefeller Institute, Lieut. R. A. BUCKNER, Gilman.

To Newport News, Va., as orthopedic surgeon, from Camp Sheridan, Lieut. R. E. DAVIES, Chicago.

To Oteen, N. C., from Waynesville, Major D. W. YOUNG, Paris.

To Philippine Department, from Camp Devens, Lieut. H. W. WATEROUS, Galva.

To Riverside, Calif., March Field, from Vancouver Barracks, Capt. C. L. STEALY, Freeport.

To Rockefeller Institute for instruction in the treatment of infected wounds, from Boston, Lieut. J. L. WEBB, Chicago.

To Whipple Barracks, Ariz., from Camp Beauregard, Capt. E. S. GILLESPIE, Wenona.

The following orders have been revoked: *To Fort Benjamin Harrison,* from Camp Custer, Capt. L. H. DAGGETT, Chicago. *To Fort McPherson, Ga.,* from Camp Wheeler, Lieut. J. W. MILLER, Chicago.

Indiana

To Fort Benjamin Harrison, Ind., from Fort Sheridan, Lieut. F. L. HOSMAN, Indianapolis.

To Fort McHenry, Md., from Hot Springs, Lieuts. E. O. DANIELS, Marion; C. G. MACKEY, Whiting.

To Fort Sam Houston, Texas, base hospital, from Camp Zachary Taylor, Lieut. C. E. QUINN, Burlington.

To Lakewood, N. J., from Camp Upton, Lieut. K. C. FITZGERALD, New Harmony.

To Pittsburgh, Pa., from Hot Springs, Lieut. F. KLEINMAN, Hebron.

To West Baden, Ind., from Lakewood, Capt. C. R. STRICKLAND, Indianapolis.

Iowa

To Camp A. A. Humphreys, Va., base hospital, from Hot Springs, Lieut. C. KAIL, Hartford.

To Camp Travis, Texas, base hospital, from Camp Cody, Capt. J. F. STUDEBAKER, Fort Dodge.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Capt. S. C. BUCK, Grinnell.

Louisiana

To Fort McPherson, Ga., from Camp Dix, Capt. P. G. LA CROIX, Lieut. P. J. CARTER, New Orleans.

Maryland

To Camp Lee, Va., base hospital, from Hot Springs, Lieut. S. N. PILCHARD, Salisbury.

To Fort McHenry, Md., from Army Medical School, Major R. T. TAYLOR, Baltimore; from Hot Springs, Capt. T. R. PAYNE, *Corbett.*

Massachusetts

To Army Medical School, from Fort Oglethorpe, Capt. F. E. WHEATLEY, North Abington.

To Boston, Mass., from Camp Dix, Capt. D. MACOMBER, Newton; from Camp Jackson, Lieut. C. H. LAWRENCE, Jr., Boston.

To Camp Devens, Mass., from Camp Dix, Lieut. C. E. RODERICK, Boston. Base hospital, from Camp Dix, Majors P. E. TRUESDALE, Fall River; E. L. DAVIS, Springfield.

To Camp Dix, N. J., base hospital, from Camp Shelby, Lieut. J. H. TAYLOR, *Boston.*

To Camp Upton, N. Y., from Camp Meade, Capt. R. A. GREENE, Palmer.

To Colonia, N. J., from Army Medical School, Lieut. J. M. GILCREST, Springfield.

To Eastview, N. Y., from Camp Dix, Major J. HOMANS, Brookline.

To New Haven, Conn., from Camp McClellan, Lieut. H. ZIMMERMAN, Springfield.

To Oteen, N. C., from Camp *Meade, Capt. G. E.* EMERY, Worcester.

To Rockefeller Institute for instruction, and on completion *to his proper station,* from Colonia, Lieut. J. M. GILCREST, Springfield; from Fort McHenry, Capt. E. W. BURT, Westport.

Michigan

To Biltmore, N. C., from Waynesville, Capt. R. P. STARK, Allegan.

To Camp Grant, Ill., base hospital, from Camp Custer, Lieut. S. W. GREEN, Detroit.

To Fort McHenry, Md., from Camp Dix, Lieut. L. J. DRETZKA, Detroit.

The following order has been revoked: *To Fort Sam Houston, Texas,* base hospital, from Colonia, Major E. W. MAY, Detroit.

Minnesota

To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Dix, Lieut. W. I. LILLIE, Rochester.

To Detroit, Mich., from Camp Dix, Lieut. E. J. ENGBERG, St. Paul.

To Fort McHenry, from Metuchen, Capt. J. W. LEE, *Minneapolis.*

To Fort Snelling, Minn., from Camp Dix, Capt. A. W. MORRISON, Minneapolis.

To New Haven, Conn., from Army Medical School, Lieut. J. K. ANDERSON, Minneapolis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort McHenry, Major A. R. COLVIN, St. Paul.

To Washington, D. C., from Rochester, Major E. S. JUDD, Rochester.

Mississippi

To Fort McPherson, Ga., from Camp Dix, Lieut. G. A. CALDWELL, Corinth.

To Newport News, Va., from Camp McClellan, Lieut. L. T. FERRELL, Murphy.

Missouri

To Camp Upton, N. Y., from Portland, Ore., Lieut. A. L. WESSLING, Martinsville.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Lieut. E. J. BUTZKE, Bowling Green.

To Fort Porter, N. Y., from Camp Dix, Lieut. G. L. HARRINGTON, Independence.

To Jefferson Barracks, Mo., from Camp Dodge, Capt. A. LEVY, St. Louis.

To Pittsburgh, Pa., from Hot Springs, Capt. F. J. V. KREBS, St. Louis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort McHenry, Capt. H. E. HAPPEL, St. Louis.

To San Francisco, Calif., from Camp Lee, Capt. C. A. ROSE, Kansas City.

Montana

To Chicago, Ill., from Hot Springs, Lieut. J. E. ARNOLD, Miles City.

Nebraska

To Fort Des Moines, Iowa, from Camp Dix, Major E. C. HENRY, Omaha.

To West Point, N. Y., from Biltmore, Major F. J. WURTELE, North Platte.

New Hampshire

To San Francisco, Calif., from Walter Reed General Hospital, Capt. E. C. DURGIN, East Andover.

New Jersey

To Benicia, Calif., from Cape May, Lieut. A. W. SMITH.

To Biltmore, N. C., from Camp Logan, Capt. T. ALSOP, Atlantic City.

To Fort McHenry, Md., from Camp Hancock, Major G. C. ALBEE, South Orange.

To Fort Totten, N. Y., from Camp Devens, Capt. F. W. HUNTER, Fort Totten.

To Otisville, N. Y., from New Haven, Lieut. A. E. JAFFIN, Jersey City.

To Philadelphia, Pa., from Camp Dix, Lieut.-Col. J. C. McCOY, Paterson.

New Mexico

To Fort Bliss, Texas, base hospital, from Camp Cody, Capt. J. E. HASTINGS, Bernalillo.

To Mineola, N. Y., Hazelhurst Field, from San Antonio, Major W. MacLAKE, Silver City.

New York

To Camp Bragg, N. C., base hospital, from Camp Wadsworth, Capt. J. RAPHAEL, Brooklyn.

To Camp Meade, Md., base hospital, from Army Medical School, Major R. R. FITCH, Rochester.

To Camp Sherman, Ohio, base hospital, from Waynesville, Lieut. J. B. DEUEL, Rochester.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Capts. C. A. NEWCOMB, Newark; E. P. EGLEE, New York.

To Detroit, Mich., from Rockefeller Institute, Lieut. C. W. DEMONG, Syracuse.

To Fort McHenry, Md., from Camp Holabird, Lieut. F. BARBER, Rochester; from Camp Jackson, Lieut. M. GLEICH, New York; from Hot Springs, Lieut. L. J. DeRUSSO, Albany.

To Fort McPherson, Ga., from Camp Dix, Lieut. F. J. AUWERS, Rochester.

To Fort Porter, N. Y., from Camp Meigs, Lieut. J. V. SWIERAT, Lancaster.

To Hoboken, N. J., from Camp A. A. Humphreys, Lieut. A. B. FERGUSON, New York.

To New Haven, Conn., from Army Medical School, Lieuts. R. E. CUMMING, New York; T. M. CALLADINE, Jr., Perry.

To Otisville, N. Y., from Camp McClellan, Capt. S. A. MAHADY, Utica.

To Pittsburgh, Pa., from Hot Springs, Lieut. J. J. MADDEN, Brooklyn.

To Walter Reed General Hospital, D. C., Capt. A. A. MOORE, New York; from Camp Lee, Lieut. J. W. McCHESNEY, Baldwin; from Camp Sherman, Lieut. F. A. SHARPE, New York; from Carlisle, Lieut. A. D. HAVERSTOCK, Brooklyn; from Fort McPherson, Capt. H. G. DUNHAM, New York; from Fort Oglethorpe, Capt. B. H. CAPLES, New York.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Col. E. L. KEYES, Forest Hills; from Camp Upton, Major D. W. WYNKOOP, Babylon.

To Williamsbridge, N. Y., from Camp Dix, Capt. L. E. GRIMBERG, New York.

The following order has been revoked: *To Camp Meade, Md.*, base hospital, from Cape May, Capt. J. HORNI, Brooklyn.

North Dakota

To Washington, D. C., Surgeon-General's Office, and on completion *to Fort Snelling, Minn.*, from Camp Dix, Lieut.-Col. E. P. QUAIN, Bismarck.

Ohio

To Camp Dix, N. J., base hospital, from Camp Pike, Major A. S. McCLAIN, Lakewood.

To Camp Grant, Ill., base hospital, from Camp Cody, Capt. W. F. MILLHON, Columbus; Lieut. M. H. SHIPLEY, Cleveland.

To Camp Meade, Md., base hospital, Lieut. M. E. HARRELL, Woodstock.

To Camp Sherman, Ohio, base hospital, from Waynesville, Capt. A. C. BARTHOLOMEW, Van Wert.

To Fort Bliss, Texas, base hospital, from Camp Grant, Lieut. H. K. BECKWITH, Toledo.

To Fort McHenry, Md., from Camp Jackson, Lieut. C. J. ALTMAIER, Marion.

To Fort Sheridan, Ill., from Camp Dix, Capt. J. A. CALDWELL, Cinicinnati; from West Baden, Capt. H. H. FISHER, Columbus.

To Hoboken, N. J., from Camp Devens, Major J. M. DAY, Waynesfield.

To New Haven, Conn., from Army Medical School, Lieut. I. B. SMOCK, Canton.

To Newport News, Va., as orthopedic surgeon, from Boston, Lieut. L. W. KRAUSS, Cleveland.

To Philadelphia, Pa., from Camp Zachary Taylor, Capt. A. CROTTI, Columbus.

To Pittsburgh, Pa., from Hot Springs, Lieut. J. F. BEERMAN, Toledo.

To Walter Reed General Hospital, D. C., from Camp Sherman, Capt. J. K. TRESSEL, Alliance.

To Washington, D. C., from Camp Dix, Lieut.-Col. J. A. SHERBONDY, Youngstown.

To Williamsbridge, N. Y., from Plattsburg Barracks, Lieut. G. H. REEVE, Cleveland.

The following order has been revoked: *To Hoboken, N. J.*, from Camp Dix, Lieut. J. C. STAATS, Cincinnati.

Oklahoma

To Indianapolis, Ind., from Vancouver Barracks, Lieut. W. M. SYKES, Ramona.

Oregon

The following order has been revoked: *To Fort Sheridan, Ill.*, from Fort Riley, Lieut. K. H. MARTZLOFF, Portland.

Pennsylvania

To Army Medical School, from Camp Meade, Capt. R. L. ENGLE, Philadelphia.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Capt. A. TRASOFF, Philadelphia.

To Eastview, N. Y., from the Surgeon-General's Office, Major R. E. DAVISON, Pittsburgh.

To Fort McHenry, Md., from Camp Dix, Capt. G. M. LAWS, Lieut. A. P. BERG, Philadelphia; from Camp Joseph E. Johnston, Capt. R. E. STIFEL, Pittsburgh.

To Hoboken, N. J., from Camp McClellan, Capt. O. K. SPEER, Tamaqua, from Camp Sevier, Major W. K. EVANS, Chester.

To Muscles Shoals, Ala., from Camp McClellan, Lieut. A. F. KLUTZ, Philadelphia.

To Otisville, N. Y., from New Haven, Capt. S. A. LOEWENBERG, Lieut. B. A. McDERMOTT, Philadelphia.

To Panama Canal Zone, from Army Medical School, Capt. L. S. TOWNSEND, Beaver Falls.

To Pittsburgh, Pa., from Camp Dix, Capt. J. W. ROBINSON, Pittsburgh

To Plattsburgh Barracks, N. Y., from Camp Dix, Major W. W. RICHARDSON, Mercer.

To Rockefeller Institute for instruction, from Lakewood, Capt. E. A. CAMPBELL, Chester. On completion *to his proper station*, from Fort McHenry, Lieut. H. L. SHAFFER, Pittsburgh.

To Saltville, Va., from Camp Dix, Lieut. W. H. MACKAY, Harrisburg.

To Walter Reed General Hospital, D. C., from Carlisle, Capt. C. C. MECHLING, Pittsburgh.

To Washington, D. C., Surgeon-General's Office, Lieut.-Col. D. SILVER, Pittsburgh; from Camp Dix, Capt. J. J. SINGER, Greensburg

To Williamsbridge, N. Y., from Plattsburgh Barracks, Lieut. C. A. PATTEN, Philadelphia.

The following order has been revoked: *To Fort Sheridan, Ill.*, from Fort Oglethorpe, Lieut. H. E. MASSY, Sharon.

Porto Rico

To Fort Monroe, Va., from Camp Las Casas, Lieut. J. H. FONT, Barranquitas.

To New Haven, Conn., from Army Medical School, Lieut. C. S. MOSS, Jr., Ponce.

Rhode Island

To Fort Sheridan, Ill., from Camp Abraham Eustis, Major J. F. HAWKINS, Providence.

Tennessee

To Camp Gordon, Ga., as tuberculosis examiner, from Camp Beauregard, Capt. R. M. LITTLE, Martin.

To Camp Sherman, Ohio, to examine the command for cardiovascular diseases, from Camp Pike, Capt. O. N. BRYAN, Nashville.

To Camp Zachary Taylor, Ky., from Camp Sheridan, Lieut. C. T. WATERS, Memphis.

To Fort Des Moines, Iowa, from Camp McClellan, Lieut. S. BURCHART, Memphis.

To Fort Monroe, Va., as instructor, from Camp McClellan, Capt. J. M. LEE, Nashville.

To Hoboken, N. J., from Camp Hancock, Capt. R. W. DAKE, Nashville.

To Walter Reed General Hospital, D. C., from Camp Dix, Capt. J. D. L. McPHEETERS, Chattanooga; from Camp Lee, Lieut. J. W. SIMPSON, Nashville.

Texas

To Camp Travis, Texas, base hospital, from Camp Cody, Capt. J. W. McLAUGHLIN, Austin.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Lieuts. W. C. COLBERT, Chicota; C. L. MOORE, Houston; J. W. REID, Jr., Maysfield.

To Dallas, Texas, Love Field, from Austin, Capt. L. C. G. BUCHANAN, Big Springs.

To Fort Riley, from Camp Cody, Lieut. E. B. BRANNIN, Dallas.

To Fort Sam Houston, Texas, base hospital, from West Point, Miss., Major W. R. JAMIESON, El Paso.

To Hoboken, N. J., from Yale Army Laboratory School, Lieut. J. M. HARRIS, Fort Davis.

To report to the Commanding General, Western Department, from Camp Lewis, Capt. J. J. JOHNSON, Sulphur Springs.

To Rockefeller Institute for instruction, and on completion *to his proper station,* from Colonia, Lieut. O. N. MAYO, Belton.

Virginia

To Camp Devens, Mass., as tuberculosis examiner, from Camp Wheeler, Major A. J. BLACK, Hollins:

To Camp Holabird, Md., from Camp Jackson, Capt. G. L. ZIMMERMAN, Pounding Mill.

To Camp Wadsworth, S. C., base hospital, from Waynesville, Lieuts. D. B. COLE, Chilhowie; J. L. STRINGFELLOW, Norfolk.

To Fort McHenry, Md., from Camp Dix, Major H. H. TROUT, Roanoke.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Fort McHenry, Capt. J. M. ROBINSON, Danville.

The following order has been revoked: *To San Francisco, Calif.,* from Camp Jackson, Lieut. D. S. DIVERS, Roanoke.

Washington

To Fort Sheridan, Ill., from Camp Lee, Lieut. M. M. HANSON, Seattle.

To San Francisco, Calif., from Camp Jackson, Capt. H. H. HEWITT, Seattle; from Camp Lee, Capt. L. A. LAVANTURE, Ritzville.

To the retired list, from Vancouver Barracks, Col. R. G. EBERT.

West Virginia

To Camp Sherman, Ohio, base hospital, from Fort Sheridan, Major J. E. CANNADAY, Charleston.

Wisconsin

To Camp Lewis, Wash., as tuberculosis examiner, from Vancouver Barracks, Lieut. L. F. RUSCHAUPT, Milwaukee.

To Camp Sherman, Ohio, as tuberculosis examiner, from Fort Riley, Capt. J. W. LOCKHART, Oshkosh.

To Camp Travis, Texas, as tuberculosis examiner, from Camp Beauregard, Capt. A. EGDAHL, Menomonie.

To Fort Sheridan, Ill., from Camp Dix, Capt. F. E. ANDRE, Kenosha; from Camp Grant, Lieut. L. E. YOUMANS, Mukwonago.

To Walter Reed General Hospital, D. C., from the Surgeon-General's Office, Capt. B. H. HOLMES, Delavan.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. George B. Worthington has been appointed health officer of San Diego, succeeding Dr. Carl S. Owen, resigned.

ILLINOIS

Personal.—Leo M. Beilin, Captain, M. C., U. S. Army, Springfield, started for Siberia, February 15, and is to be placed in charge of a unit to combat typhus in the United States base in Siberia.——Dr. John A. Wheeler, Springfield, has been endorsed by the Sangamon County Medical Society as a candidate for commissioner of public health and safety.

Nurses' Bill.—A bill has been presented to the legislature for passage by the nurses of this state. After a conference between representatives of the nurses on one side, and the health department, Chicago Medical Society and Illinois Hospital Association on the other, it was not possible to reach an agreement. Another bill has been prepared for introduction by the Illinois Hospital Association.

Hospital Association Organized.—The Illinois Hospital Association has recently been organized, and the following officers have been elected: president, Dr. Malcolm L. Harris; vice president, Dr. William L. Noble; secretary, Dr. Egil T. Olsen, and treasurer, Dr. Carl O. Young, all of Chicago. The purpose of the association is "to promote the welfare of the sick, to make a study of hospital problems and work out solutions to the best interests of the sick and of the hospitals." The fair treatment of all hospitals in the standardization propaganda will also be taken up by the association.

Antituberculosis Work.—At the annual meeting of the Springfield Tuberculosis Association, February 11, Dr. Lewis C. Taylor was elected president, Dr. George Thomas Palmer, director, and Dr. Lewis C. Taylor and C. St. Clair Drake were elected members of the board of directors, and Dr. George F. Stericker, chairman of the executive committee. During the year the organization has not only retained the high standard of efficiency set for it, but has met the extraordinary war time demand and the further call for help during the influenza epidemic and in addition, has maintained competent and effective visiting nurse service.

Chicago

Personal.—Dr. Frederick A. Besley, formerly consulting surgeon, Second Army Corps, American Expeditionary Forces, who is visiting in San Diego, gave a talk on his experiences in France before the San Diego County Medical Society, February 11.

Opium Dens Raided.—In two raids, made February 18, seven Chinese believed to be agents of the opium trust were captured and $26,000 worth of opium and $20,000 in currency were seized. The raids were headed by W. H. Sage, chief of the narcotics department of the internal revenue division.

MARYLAND

Meetings.—At the regular meeting of the Baltimore City Medical Society, held in Osler Hall, February 21, Brig.-Gen. William S. Thayer, Baltimore, chief consultant of the medical division, and Major-Gen. John M. T. Finney, Baltimore, chief consultant of the surgical division, Medical Corps, United States Army, spoke on the work of their respective departments and were followed by Dr. Elizabeth Hurdon, late of the Royal Army Medical Corps.

Anniversary of Johns Hopkins.—Commemorating the forty-third anniversary of the opening of the Johns Hopkins University, exercises were observed publicly at 11 o'clock, February 22, in McCoy Hall. The principal address was delivered by Dr. George E. Vincent, president of the Rockefeller Foundation, who was introduced by Frank J. Goodnow, the president of the university. The trustees of the university, the faculty, the alumni council, the medical, philosophical and undergraduate students formed into a procession and marched to the hall.

MINNESOTA

Hospital Staff for Duluth Hospital.—A meeting was held in Duluth, recently, to further the organization of the medical staff for St. Mary's Hospital, and a committee consisting of Drs. Edward L. Tuohy, Alexander J. Braden, Clarence W. T. Taylor, Theodore L. Chapman, Emanuel Z. Shapiro was appointed to formulate a constitution.

Personal.—Dr. Edward E. Webber, Chisholm, has been appointed chief surgeon of the Duluth, Mesaba and Northern Railroad with headquarters at Proctor, succeeding Dr. William H. Magie, Duluth.——Dr. Blanche W. Horner, of the Rochester State Hospital, has been appointed assistant physician to the Kenilworth Sanatorium, Kenilworth, Ill., succeeding Dr. Ella Blackburn, resigned.——Dr. James H. Beaty has resigned as city physician of St. Cloud.——Dr. George McL. Waldie, New Bedford, has been elected secretary, and Dr. Wilbur N. Morell, Verndale, a director of the Wadena County Public Health Association.

New Officers.—At the annual meeting of the Upper Mississippi Medical Society, held in Brainerd, February 13, the following officers were elected: president, Dr. Arthur W. Ide, Brainerd; vice president, Dr. Audley V. Fankboner, Motley, and secretary-treasurer, Dr. John A. Evert, Brainerd. The next meeting of the association will be held at Pine River, May 20.——At the annual meeting of the Southern Minnesota Medical Association, held in Mankato, January 21, the following officers were elected: Dr. John Williams, Lake Crystal, president; Drs. Walter E. Sistrunk, Rochester, and Walter J. Richardson, Fairmont, vice presidents; Dr. Henry T. McGuigan, Red Wing, secretary (reelected), and Dr. George F. Merritt, St. Peter, treasurer (reelected).

MONTANA

Personal.—Dr. Olive B. Cordua, Helena, has been appointed state chairman of the movement which the American Women's Hospitals have started to raise $250,000 for relief work in Servia, and she has named as district chairmen, Drs. T. A. Bottors, Belt; Agnes J. H. Doty, Billings; Hazel Freed, Grass Range; Olive M. S. Meany, Plains; Lillian G. Miller, Hamilton; Caroline McGill, Butte; Anna A. C. Owens, Hamilton; Helen C. Roberts, Great Falls, and Alma M. B. Ruble, Columbus.——Dr. Patrick H. McCarthy, Butte, has been reappointed secretary of the Silverbow County Board of Health.——Dr. Arter W. Deal, Lewistown, health officer of Fergus County is reported to be seriously ill in St. Joseph's Hospital, Lewistown.——Dr. Harmon T. Rhoads, Choteau, has been appointed county physician of Teton County.——Dr. Benoni A. Place, Great Falls, has been reappointed physician of Cascade County.——Dr. Joseph A. Piedalue has resigned as health officer of Bozeman.

NEBRASKA

Personal.—Dr. Edgar A. Pickens, Benkelman, has been appointed staff physician at the Lincoln State Hospital, succeeding Dr. Richard H. Spradling, Lincoln, who has been made assistant superintendent. Dr. Spradling in his turn succeeds Dr. N. H. Newell, Lincoln, resigned to take up postgraduate medical work in the East.

New Home for Medical Society.—A fourteen or sixteen story building is to be erected at Omaha this year to be occupied exclusively by members of the medical and allied professions. It will be leased and operated by the Douglas County Medical Society, with the exception of the two lower floors which will be retained for general rental purposes.

NEW YORK

Influenza Sweeps Transport.—The transport *Manchuria* which arrived in this port, February 22, carrying over 4,000 returning troops was swept by an epidemic of influenza during the trip. There were 168 men who contracted the disease, twenty-four of whom developed pneumonia. Four of these died.

Tuberculosis Clinic in Canton.—The first of a series of tuberculosis clinics in St. Lawrence County was held in the Town Hall, Canton, February 14, when twenty-three patients presented themselves for examination. The results of the diagnoses made by Dr. Stanley Wang of New York City were: positive tuberculosis cases, 12; suspicious cases to be kept under observation and reexamined, 5, and negative for tuberculosis, 6.

Syracuse Health Officers' Course.—The next residence course for health officers, under the auspices of Syracuse University, will commence, March 28. This course is not limited to health officers but is open to all physicians who wish to acquaint themselves with the latest developments in public health work. Further information regarding this course and registration blanks may be obtained from Dr. Frederick W. Sears, 602 West Onondaga Street, Syracuse.

Water Supply Improvements at Watertown.—A novel improvement has been carried out at Watertown in connection with the gravity mechanical water filter for the city. For the purpose of reducing the high turbidity of the Black River water a large sedimentation or coagulation basin has been formed out of one of the channels in the river lying between an island and the mainland, by placing dams across the channel at the upper and lower ends of the island, thus providing large sedimentation capacity at very low cost. Alum is applied to the water by a whirlpool device at the inlet end.

New York City

Physicians Association Meeting.—At the meeting of the New York Physicians Association, held, February 27, the paper of the evening was read by Dr. Joseph Fraenkel, on "Internal Secretions."

Influenza in Sing Sing Prison.—A new outbreak of influenza is reported from Sing Sing prison. There were twenty-five prisoners ill with the disease, February 15. Dr. Amos O. Squire, Ossining, the prison physician, reports that during the first epidemic there were ninety patients under treatment and that not one succumbed, though a number contracted pneumonia.

Personal.—Capt. Gouverneur M. Phelps, M. C., U. S. Army, who has worked on all the battle fronts except the Italian, recently returned to his home in this city.——Dr. Stephen Smith celebrated his ninety-sixth birthday, February 19. He is still in good health and only resigned from his position on the State Board of Charities in February, 1918, after having served on the board for thirty-four years.

Class in Roentgenography for Women.—Hunter College for Women offers to give a systematic course of training in the technic of roentgenography. The course lasts from two to three months, and consists of dark room technic, regulation of roentgen ray tubes, principles of machinery, placing of the patient for the various roentgenograms, making the exposures, etc. In connection with this training a thorough course in anatomy and physics is given. Hunter College is the first institution of its kind to offer such a course to women.

War Community Service for Physicians.—Members of the medical profession of this city have been advised that a Convalescent Bureau has been established by the Officers Service Department of the War Camp Community Service at Madison Avenue and Forty-Fourth Street. The object is to offer to any officer of the United States Army, Navy, or Marine Corps, on furlough or after discharge from the service, every opportunity for rest and recuperation in the country. Hospitality is offered in private homes at very reasonable rates and special rates have been secured in out-of-town hotels and country clubs.

Child Welfare Conference.—The New York State Association of Child Welfare Boards recently held a three day session in this city. In welcoming the delegates the acting mayor promised consideration by the city officials of any program agreed on and paid a tribute to the work the child welfare boards were doing. Health Commissioner Copeland advocated government control of milk and deplored the fact that such a large proportion of the hospital beds in New York hospitals were in private institutions. One of the aims of the welfare boards is to secure further legislation to provide for the maintenance of widows and their children, so that widowed mothers would be enabled to give their children better protection. Assemblyman Martin McCue stated that he would do everything in his power as a member of the legislature to advance legislation to make the work of the boards more effective.

NORTH DAKOTA

Trachoma Hospital Established.—The seventh trachoma hospital established by the United States government has been opened in La Moure, under the charge of Dr. Clarence E. Downes.

Personal.—Dr. George A. Carpenter, Fargo, has been appointed superintendent of the Cass County Board of Health. ——Drs. H. Haugen, Tindred; William F. Baillie, Hunter; Howard B. Huntley, Leonard; Horace Clark, Wheatland; Sidney B. Clark, Buffalo; Harry J. Gowenlock, Gardner, and John B. James, Page, have been appointed county physicians of Cass County.

New Officers Elected.—At the annual meeting of the Sheyenne Valley District Medical Society held in Valley City, January 29, Dr. Ross D. Benson, Hannaford, was elected president; Dr. Clinton E. Spicer, vice president, and Dr. Samuel A. Zimmermann, secretary-treasurer.——Devils Lake District Medical Society held its annual meeting in Devils Lake, January 21, and elected Dr. John G. Lamont, Dunseith, president; Dr. Arthur T. Horsman, Devils Lake, vice president, and Dr. George F. Drew, Devils Lake, secretary-treasurer.——At the annual meeting of the Grand Forks District Medical Society held in Grand Forks, January 8, Dr. Gudmund J. Gislason was elected president; Dr. H. J. Montat, vice president; Dr. Henry J. Frieskn, secretary, and Dr. Henry W. F. Law, treasurer.

OHIO

Personal.—Dr. Stephen A. Douglass, superintendent of the Mount Vernon State Sanatorium, who has been in Italy with the American Tuberculosis Commission, has returned and resumed his duties.

Health Certificates for Restaurant Employees.—The Lonz bill now pending in the legislature requires persons employed in restaurants or other places where food is prepared for sale to submit to a semiannual medical examination under the direction of local health authorities, and to present certificates of freedom from contagious or infectious diseases.

Coroner's Elect Officers.—At the annual meeting of the State Association of Coroners, Dr. Theodore C. McQuate, Canton, was elected president; Dr. William C. Heintz, Columbus, vice president, and Dr. Arthur C. Bauer, Cincinnati, secretary-treasurer. A special legislative committee was appointed to draft a bill placing coroners on a salary basis instead of on a fee system.

Committee on Mental Hygiene.—A state organization for mental hygiene is to be formed which will cooperate with the national committee. Preliminary steps have been taken by the appointment of Drs. Erl Baber, Dayton; Emerson A. North, Cincinnati, and Ora O. Fordyce, Athens, as a committee to present a plan for the organization of the Ohio branch of the national association.

OKLAHOMA

Personal.—Dr. G. Fowler Border, Mangum, has been elected secretary of the Greer County Medical Society, succeeding Dr. Thomas J. Horsley, deceased.

Society Reorganized.—The physicians of Comanche County met at Lawton, January 15, and reorganized the Comanche

County Medical Society, electing Dr. Alexander H. Stewart, president; Dr. Francis E. Rosenberger, vice president, and Dr. E. Brent Mitchell, secretary-treasurer.

Sanatoriums for Tuberculosis.—A bill has been presented in the legislature for the equipment and maintainance of six sanatoriums in the state. For this purpose an initial appropriation of $600,000 has been asked for building, and also an annual appropriation of $75,000 for maintenance.

OREGON

Influenza.—No deaths were recorded from this disease in Portland, February 12, and but eleven new cases were reported. All bans were lifted, and for the sporadic cases occurring a rigid two weeks' isolation was to be enforced.

PENNSYLVANIA

Personal.—Capt. Edwin B. Marshall, Annville, who spent over a year in France, has returned home.——Dr. Thomas L., Doyle of Tremont has been decorated with the military cross by King George for gallantry. Dr. Doyle was formerly chief resident physician at the Hahnemann Hospital, Philadelphia.

Hospital Items.—General Hospital No. 17 at Markelton, Pa., has been designated by the surgeon-general for soldiers having pulmonary tuberculosis.——The new hospital built by the Emergency Fleet Corporation, will be converted into a general hospital for the people of Bristol and surrounding districts.——The contract for construction work amounting to $343,000 has been awarded for the erection of four one-story buildings and two two-story buildings at Hamburg, Pa. Large additions are also contemplated for the General Hospital and for the St. Joseph Hospital of Lancaster, Pa.

Philadelphia

Army Hospital Opened.—A new U. S. General Hospital was opened, February 17, and occupies part of the Philadelphia General Hospital and has accommodations for 5,000 service men. The hospital force numbers twenty-seven officers, 225 enlisted men and fifty nurses.

Officers Elected.—The annual reunion and business meeting of the Alumni Medical Society of the University of Pennsylvania was held at the Bourse, February 15, and the following officers were elected: president, Dr. B. Franklin Stahl; vice presidents, Drs. Radcliffe Cheston, Henry D. Jump, Lewis H. Taylor, Wilkes-Barre; Park Weed Willis, Seattle; William L. Harris, Providence, R. I.; Alexander R. Craig, Chicago; historian, Dr. William Pepper, and secretary and treasurer, Dr. Floyd E. Keene.——The following officers for the Philadelphia branch of the society were elected: president, Dr. Henry D. Jump; honorary vice president, Dr. E. F. Smith; first vice president, Dr. Clarence P. Franklin; second vice president, Dr. Paul G. Sartain; third vice president, Dr. John J. Robrecht; corresponding secretary, Dr. Stephen E. Tracy; recording secretary, Dr. William O. Hermance, and treasurer, Dr. Herbert B. Carpenter.

Personal.—Dr. Caroline M. Purnell, of the staff of the Women's Hospital of Philadelphia, has returned from France after spending four months as special commissioner for American women's hospitals.——Dr. James A. Babbitt, who has been in France since May, 1917, with the Friends' reconstruction unit, has been chosen a member of the Red Cross commission to go to Germany to help the 1,200,000 Russian prisoners there to get home.——Dr. Ross Hall Skillern, who for the past six months has been commanding officer of Base Hospital No. 89 in the south of France, has returned home. ——De La Ray Signor, Captain M. C., U. S. Army, who was with the 309th field artillery, having been gassed and having contracted influenza, which compelled him to give up his duties at the front, has been placed in charge of Camp Hospital No. 72 at Chateau-du-Soir.——Lieut. David R. Morgan, who received the Croix de Guerre and four citations for his work as a medical officer with a French detachment, has returned home.

VIRGINIA

Personal.—The following members of the faculty of the Medical College of Virginia who have been in the United States service have returned to their former positions: Dr. Blanton L. Hillsman, Richmond, associate in surgery; Aubrey H. Straus, assistant professor of bacteriology, and Phillip F. Fackenthall, professor of pharmacognosy and botany.——Dr. Edward L. Flanagan, Richmond, has been separated from the Army Medical Corps and has been made full-time health officer of Fairfax County.——Dr. J. Fulmer Bright, Richmond, has been commissioned major, M. C., Virginia Militia.——Dr. V. L. Staton has succeeded Dr. John C. Sleet as epidemiologist of Norfolk.

Election.—At the annual meeting of the Warwick County Medical Society held in Newport News, January 22, Dr. William F. Cooper was elected president, Dr. Aaron Jeffery, vice president, and Dr. Dexter W. Draper, secretary-treasurer. At this meeting final arrangements were made for the unveiling of the Walter Reed Memorial Tablet at the Walter Reed High School.

WASHINGTON

Personal.—Dr. Ivan P. Balabanoff, Tacoma, has presented to the health department of the city of Tacoma a completely equipped ambulance to be used in connection with the Contagious Disease Hospital, in memory of his wife, Dr. Margaret L. Carsley Balabanoff.——Dr. Henry H. McCarthy, Spokane, has been elected president of the state board of health.——Dr. John B. Anderson, health officer of Spokane, was elected state health commissioner, Februray 10, to succeed Dr. Thomas D. Tuttle, Seattle, who is reported to have accepted an offer from the United States Public Health Service.

WISCONSIN

Decision Against "Plaster" Doctor Affirmed.—The Supreme Court, February 5, affirmed the decision of the circuit court, declaring that John Till, the notorious "plaster" doctor of Turtle Lake, was practicing medicine without a license and sustained the sentence of a fine of $250. This man conducted a place near Turtle Lake at which treatments were given for all sorts of ailments, and was accustomed to request each person who came to see him, to sign a card and to pay 25 cents before seeing him. The card was a waiver of all claims for damages arising out of any treatment that he mi[illegible] might omit to give. The district attorney of [illegible] prosecuted Till, charging that he practiced [illegible] a license, and he was found guilty a[illegible] promptly appealed his case.

GENERAL

Roaldes Prize.—The Roaldes prize of the [illegible] gological Association, amounting to $200, is [illegible] in general competition for the best thesis on so[illegible] directly connected with laryngology or rhinology. Papers must be in the hands of the secretary, Dr. D. Bryson Delavan, 40 E. Forty-First Street, New York City, prior to June 1.

New Red Cross Head.—Dr. Livingston Farrand, Boulder, president of the University of Colorado, has been appointed by President Wilson to be chairman of the central committee of the American Red Cross, to succeed ex-President William H. Taft. Dr. Farrand will become executive head of the national Red Cross organization on the retirement of the war council, March 1. On this date the Red Cross will be changed from a war to a peace basis.

Fraternity Dinner.—The Alpha Omega Alpha Honorary Medical Fraternity announces that the three Chicago chapters of the society located, respectively, at the University of Illinois, University of Chicago and Northwestern University, will give a dinner on the first day of the annual Congress on Medical Education and Licensure, March 3, at the Hotel LaSalle, at 6:30 o'clock. Dr. William A. Evans, Chicago, will officiate as toastmaster, and among the speakers will be Dean John L. Heffron of Syracuse University, president of the organization, and Dr. William W. Root, Slaterville Springs, N. Y., secretary-treasurer.

Missionary Health Board.—The joint centenary of the Methodist Episcopal Church announces the establishment of a medical department under the direction of the board of foreign missions to guard health efficiency of its missionary workers. Dr. John G. Vaughan, formerly of Nanchang, China, is executive secretary of the new department with temporary offices at the headquarters of the Missionary Centenary, 111 Fifth Avenue, New York City. Dr. Vaughan has been until recently, a member of the surgical staff of the Rock Island System in Chicago, leaving that position to organize the new medical department of the Methodist Foreign Missionary Board.

Bequests and Donations.—The following bequests and donations have recently been announced:

Philadelphia Home for Incurables, Children's Hospital, Philadelphia Training School for Feeble-Minded Children, and two other charitable institutes, the entire estate valued at $24,000 by the late Justus Branner, after the death of the beneficiary.

Hahnemann Medical College, Philadelphia, a fund of $200,000 for research work in connection with the fight against influenza, by Walter E. Hering, Philadelphia.

Hatfield Memorial Park and Convalescent Hospital, Wagontown, Chester County, with maintenance by an annual trust fund of $10,000, is provided in the will of Mrs. M. F. Hatfield.

Howard Hospital, Philadelphia, $2,000, by the will of Gustavus B. Benson, Jr.

Missionary Hospitals in South America.—Miss Charlotte A. Aikens of New York, editor of the *Trained Nurse and Hospital Review*, has been engaged to make a tour of the Argentine Republic, Uruguay, Chile, Bolivia and Peru, to study the conditions which prevail there and the needs of the field for hospitals. After her report has been received, the number and location of the hospitals and health stations to be established in the five republics as part of the centenary program of the Methodist Episcopal Church will be announced. By interdenominational agreement, these hospitals are placed under the supervision of the Methodist Episcopal Church, which is raising $120,000,000 for world upbuilding and the extension of missionary work.

FOREIGN

Scandinavian Congress for Internal Medicine.—The internists of the Northland, organized in the Nordisk Forening for indv. Medicin, announce that a congress will be held at Copenhagen late in August, 1919. The last meeting of the kind was at Lund in 1913.

Tribute to the Medical Officers of the Italian Army and Navy.—In tribute to the medical officers of the Italian army and navy an imposing ceremony was recently organized at Naples by the *Riforma Medica* to do honor to the medical officer who had been awarded the largest number of decorations for exceptional gallantry and devotion. This was Capt. Raffaele Paolucci, the "hero of Pola." The *Riforma Medica* [illegible]ary 4, reproduces the addresses and the portrait of [illegible] naval medical officer and the trophy presented him [illegible]ng. It represents a silver winged victory, alight[illegible]arble pedestal, with bas reliefs and inscriptions. [illegible]ony was a tribute to the gallantry and devotion [illegible] by the whole of the medical profession on land [illegible]uring the war. It was especially appropriate to have [illegible]ples as Dr. Paolucci is a graduate of the medical [illegible] there. He has a record of good work also in the African campaigns before the great war began.

A Fellowship in Medicine.—At a meeting early in the year at the house of the Royal Society of Medicine in London, presided over by Sir Arbuthnot Lane, a movement was started for the formation of an association for cooperation in medicine among the English speaking physicians of the world. The promotion of a mutual understanding between the medical profession of the United States and the British Empire was the main objective of the movement, which has progressed so far that the Royal Society of Medicine has now issued a cordial invitation to the medical men of the dominions and of America, as well as to the medical men of the allies, to use the buildings of the society in London as the home of a fellowship of medicine with the tentative name, "The Interallied Fellowship of Medicine." The movement has the support of the Director General of the Army Medical Service, the Surgeon-General and others. An account of the meeting at which the organization was launched is contained in *The Lancet*, Jan. 4, 1919.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Silver Jubilee of the "Semana Medica."—We have been listing the contents and reviewing our Buenos Aires exchange for almost a generation, and the 800 pages of the volume just closed with 1918 finishes its twenty-fifth year of existence.

On the occasion of this silver jubilee a festival gathering was held at the headquarters of the journal with much ceremony and congratulations. The *Semana Medica* was founded by Dr. T. Padilla hijo. The present director is Dr. D. Decoud, professor of surgery at the University of Buenos Aires, and the editorial staff consists of twenty-six professors in the university besides Dr. E. R. Coni, the leading hygienist of Argentina, and Drs. V. Delfino and A. Chueco, the latter chief of the surgical service in the Fernández Hospital. The list of professors includes many names of international reputation, from Penna, Agote and Ingenieros to Boero.

MADRID LETTER

Madrid, Jan. 15, 1919.

Influenza in Spain

Since my last letter, influenza has been ravaging the land, leaving a trail of sorrow and tears. It was at the close of the summer that the country, disturbed and suffering from food privations, agitated by political campaigns and sectarian maneuvers, awoke one morning to the realization that a disease was rapidly sweeping away its people by hundreds. The civilian authorities in certain places were apparently responsible for the blunder of concealing the evil at its beginnings, at a time when it might have been possible to apply the remedy of isolation. San Sebastian, for instance, is a delightful city on the northern coast, close to France, with a populace trained in hygiene, and a model municipal administration. It is the residence of the court during August, September and October, and was full of "resorters" from all over Spain. This city became one of the chief foci of the epidemic, and from there, by the dispersion of its alarmed visitors, the disease spread to other provinces.

CRITICISM OF OFFICIAL MEASURES

The daily papers took advantage of the occasion to play politics, censuring what the government was doing and contributing to the general alarm and worry. All classes of society were victims of influenza, even the king, who had the disease in quite a serious form for a time.

CRITICISM OF CHIEF OF PUBLIC HEALTH SERVICE

The chief of the Public Health Service of Spain, which is subordinate to the ministro de la gobernacion (interior), is the director general or inspector general de sanidad. This position is now held by Dr. Don Manuel Martin Salazar, trained in hygiene in other countries, author of a fine treatise on immunity. He reached his position by the reputation gained from his works and the fact that he had become an authority on epidemics by his successful campaign against several, among others the epidemic of plague on the Canary Islands, at the time when Dr. Pulido was director general de sanidad. Articles were published aiming to create dissatisfaction and distrust. Politics intervened, and charges were preferred, but the government came out victorious as the proceedings brought out in a good light the work done by Dr. Salazar. He has remained in his position. As the tide of politics has swept away for the present the possibility of the appointment of a minister of health as a member of the cabinet, the campaign against Dr. Salazar has been dropped. However, all activity has some use, and the activity displayed by those who have been stirring up public opinion to such an extent has emphasized the necessity for more ample appropriations for the Public Health Service, and has contributed to facilitate the approval by parliament of the expenses incurred in combating the epidemic of influenza.

Interview with Chief of Public Health Service in Spain

In the present circumstances, the most interesting person from a medical point of view is the above mentioned Dr. Martin Salazar. In order to inform the readers of The Journal in regard to his impressions of the epidemic of influenza here, I asked for an interview with him. Dr. Salazar hastened to grant my request for an interview, expressing at the same time his high appreciation for The Journal, of which he is an assiduous reader.

THE TWO PHASES OF THE EPIDEMIC

He emphasized the two epochs of this epidemic, each with its different characteristics. The first phase, that of last spring, was an epidemic of the cities, spreading rapidly and widely but without a high death rate. It conferred positively an immunity. This immunization has benefited the populace of the cities where the disease at first spread so rapidly and widely, as at Madrid, Badajoz and Sevilla. On the other hand, the towns which were spared at the first invasion, such as Barcelona, have suffered most at the second invasion.

THE SECOND INVASION

This second invasion, according to Dr. Salazar, had two beginnings. It commenced, on one hand, in those provinces which have the closest relations with foreign countries and, on the other hand, it broke out in autogenous foci at different points, such as those among the troops. The new recruits in the barracks scattered over the country, formed the main contingents in the first appearance of the epidemic at the close of the summer. This is a phenomenon difficult to be explained unless by the immunity of the older soldiers who had had the influenza in a milder form in the spring, while the new recruits were attacked with the gravest forms of the disease. The barracks at Carabanchel near Madrid, and at La Granja in Segovia had at certain times as many as 3,000 and 4,000 down with the epidemic, and the death rate was high, although it varied widely in different regions. The pulmonary forms were common as also the hemorrhagic forms, and the deaths were sudden.

In the general population, Castellon on the Mediterranean coast was one of the worst foci of the epidemic, while the provinces bordering on France were becoming invaded. The extremely rapid and extensive spread of the epidemic coincided with the return to Spain of the thousands of laborers who had been engaged in the vintage in southern France. The disease spread like dust before the wind, and all parts of Spain, except the south, were affected. The southern provinces are now in the throes of the epidemic. At the same time Portugal was invaded by the influenza, probably brought by soldiers returning from the front in France.

In this way, as in all great pandemics, there were autogenous foci and exotic foci, and there was communication between them in spite of all the strict supervision of the frontiers which was excessive. The inspector general remarked that if he had anything to regret, it was that he had done too much; that, impelled by public opinion, he had gone beyond the limits of the scientific.

CONTAGIOUSNESS OF INFLUENZA

The inspector general de sanidad declared that the disease is so contagious that there is no means of avoiding it. The only differences in the behavior of the disease in different countries are those resulting from poverty and home conditions. Gathering in the harvest was the principal cause of the diffusion of the disease.

PROPHYLAXIS

In these infections, he added, public prophylaxis places all its hope in preventive vaccines. The British vaccine prepared for the army and navy is made with Pfeiffer's bacillus, the pneumococcus and hemolytic streptococci. From the beginning of the epidemic Dr. Salazar planned the preparation of a specific vaccine and despatched an expert bacteriologist, Dr. Falco, and appointed Dr. Ferran as delegate to study the preparation of vaccines and their application to the sick. At the same time he encouraged the municipal laboratory of Madrid to prepare a vaccine, and all the public health officials there were vaccinated with it. In Valencia, Dr. Ferran and Prof. Peset applied the vaccine, on a large scale, but their tests are not conclusive as the epidemic was already declining at the time. Hence the experiences with vaccine are not adequate to pass any judgment as to the value of preventive vaccination.

IMPORTANCE OF THE EPIDEMIC

It is evident that influenza is one of the gravest scourges that can afflict a country, not only on account of the enormous numbers of persons affected but by the mortality which, although not high in comparison to the numbers attacked, yet is very large considered as a whole. The death rate for those affected was about 3 per thousand but in some places it reached 6 per thousand. The germs encountered were the Pfeiffer bacillus, the pneumococcus and streptococcus.

THE COST OF THE EPIDEMIC

The Public Health Service was put to great expense by the epidemic. It has already paid out 750,000 pesetas and there is much yet to pay. The scarcity of physicians in certain regions and proportionately in others caused many of these places to importune the service for medical aid and an appeal was made for volunteers to go to these points. These volunteers were paid by the government at the rate of 50 pesetas a day, about $10, unless they were being paid already by the municipal authorities. Many physicians succumbed to the epidemic. The total number of deaths from it in the profession is not known yet, but it is over a hundred. The number of the dead and of the disabled will soon be known with precision as the families of the deceased (widows and orphans) have a right to a pension.

FRONTIER SANITARY SERVICE

Dr. Salazar complained that the political powers had never listened to his constant appeals for the reorganization of the sanitary service, but he insisted that, in spite of this, the frontier *servicio sanitario* in Spain is at this very moment of a higher grade than that existing elsewhere, even in France. There are in Spain seven first class *estaciones sanitarias,* two on the French border, at the eastern and western ends, and five on the border of Portugal, with a large number of stations of the second class. Each of the seven first class stations has complete laboratories, animals for experimental research, sterilization plants, etc., and an abundant and select personnel kept abreast with progress by the studies and practical work required of them. Each of the seven stations has its special hospital.

The Outlook for the Public Health Service

The inspector general de sanidad had been urged by friends to take a much needed rest, when recently a man of courage and capacity was appointed ministro de la gobernacion (possibly acting premier) the man who is the hope of the physicians of Spain, Dr. Gimeno, the first physician to be appointed to that cabinet position. The inspector general meets in the new minister a capacity which understands, and he feels the breath of new life; he has recovered his health and energies and turned again with zeal and a smile to renew the battle against disease and ignorance.

MEXICO LETTER

MEXICO CITY, Feb. 9, 1919.

Death Rate Exceeds Birth Rate in the Capital

According to some recently published statistics, there were 21,915 deaths recorded in the city of Mexico during 1918, and only 7,542 births, which seems to indicate that the population has been reduced by 14,373. But this last figure cannot be regarded as accurate because there are always a number of persons who fail to comply with the official regulations for notification in the respective bureaus of the birth of their children. But even making allowance for all this, there is no doubt that the death rate exceeded the birth rate. Influenza was responsible for 1,935 deaths, syphilis for 232, bronchitis for 1,556, bronchopneumonia for 1,456, pneumonia for 2,312, enteritis for 5,496, and various ailments for the other deaths. The high figure of the deaths from pneumonia is remarkable but this is not restricted, I believe, to Mexico.

Is Asiatic Cholera in New York?

Some alarm has been aroused by news received from Vera Cruz to the effect that the papers of a ship arriving from New York specify the existence of Asiatic cholera in that important city of North America. The sanitary authorities have been investigating since then the truth of this rumor.

Bovine Tuberculosis

The Departamento de Salubridad has arranged for a rigorous inspection of cattle imported into Yucatan, as it has been learned that a large number of cows which have been brought into the country by the port of Progreso have been found affected with tuberculosis. A commission of veterinarians has been appointed to take charge of the matter. There had previously been no official inspection of cattle at this port of Progreso, and unscrupulous sellers and purchasers of live stock took advantage of this fact to unload there their sick cattle, with grave injury to the public health.

Typhus

During the last week of January, there were forty-nine cases of tabardillo recorded, and the week following, fifty-eight cases of the same. Tabardillo is endemic here, and it flares up again and again with most distressing periodicity, notwithstanding the measures taken to keep it under control.

Radium

The government of the federal district has acquired an amount of radium valued at $10,000, and it has arranged that the precious metal can be utilized by physicians who wish to apply it in the treatment of cancer, provided that they are adepts in its use. When the patients are poor, the radium will be supplied gratuitously, but those able to pay will be charged a modest rent for the loan of the metal.

Smallpox

This serious disease has appeared in epidemic form in the state of Sinaloa, adjoining Sonora. Numerous cases have been reported.

Inauguration of the University Courses

The courses for the new year were inaugurated the 7th, the rector of the university, Lic. J. N. Macías, presiding.

The formal ceremony was held in the amphitheater of the Escuela Preparatoria. The culminating note of this gathering was the friendly tone employed by two of the speakers in referring to the United States, one of them Dr. Castanedo of the Facultad de Medicina, in speaking of the present situation of the world. The importance of this fact will be understood better when it is realized that until quite recently it was an evidence of patriotism (?) to attack our neighbors to the north, and that sooner or later the influence of the universities will be felt in the formation of the national spirit and in the march of public affairs.

PARIS LETTER

Paris, Jan. 30, 1919.

Management of War Wounds of the Deep Urethra

This question was the subject of an important discussion at the fourth reunion of the chefs de centres génito-urinaires which was held recently. Dr. Heitz-Boyer, chief of the surgical clinic of the Paris medical faculty, maintained that at the front the treatment of lesions of the posterior urethra is determined by the fact whether this is the only wound or whether it is associated with wounds of other viscera and of the bones. When only the urethra is involved, the soft parts must be treated with as much care as the urethra itself. The treatment of the soft parts consists in the excision of contused tissues; immediate suture not being indicated in the majority of cases, especially when the wound is in the gluteal region; secondary suture or delayed primary suture is better here. The treatment of the urethra varies according to the case. If the lesion is not extensive and of recent origin, immediate suture is indicated, with a retention catheter. If the lesions are very extensive and more than forty-eight hours old, the urethral wound should be left open and the urine evacuated, preferably through a suprapubic opening into the bladder; this is particularly indicated in prostatic lesions.

TREATMENT OF ASSOCIATED LESIONS

The treatment of the associated lesions consists in immediate suture of the anus, with the production of temporary constipation. In cases of wounds of the lower segment of the rectum it is only rarely possible to resort to immediate suture; it is best to perform a colostomy at the outset through which the bowel contents can be evacuated. If diversion of the urine is also necessary, this should be done through the perineum. In cases of pelvic cellulitis, excellent drainage may be obtained by resecting the coccyx. If there is present a bladder wound, suprapubic cystostomy is always indicated. Associated bone lesions demand cleaning out the wound very thoroughly, removing all bone fragments, and assuring maximum drainage by interrupted irrigation, preferably with ether. The existence of extensive lesions of the venous channels, especially those of the pelvis, demands evacuation of the hematoma, ligation of the bleeding vessels, if necessary, and free drainage.

OBSTRUCTION OF POSTERIOR URETHRA

Dr. Marion of Paris presented a report in which he drew the following conclusions: In the presence of an obstruction in the posterior urethra, the result of trauma, the two ends of the urethra are caught up, any interposing tissue is dissected out, and the urethral canal is reconstructed by end-to-end suture anastomosis, if possible; if not, by bringing the periurethral tissues into approximation, if urethrorrhaphy is impossible. When a urethrorrhaphy is done, no catheter should be placed in the urethra. If the ends of the divided urethra are separated widely or retracted or contracted, a dilatation should be done, and if this fails, internal urethrotomy should be attempted. If this procedure also fails, then urethroplasty must be done, as in any case of obstruction. Whenever the urethral lesion is complicated by fistula, it is well to make sure at the very outset that the surrounding tissues or areas have been put in the best sanitary condition (cystostomy, opening of abscesses, removing foreign bodies, calculi and sequestra) and then introduce a urethral catheter. This is often sufficient to produce a cure.

URETHRORECTAL FISTULA

In cases of urethrorectal fistula, the urethra is separated from the rectum and then the openings in each canal may be closed in any one of the following ways: (1) Each opening is closed separately and periurethral tissues are interposed between the rectum and urethra; (2) a flap of rectal mucosa is drawn down over the fistulous opening; (3) the rectum is divided above the sphincter, and the upper end is sutured into the anal margin, if there is narrowing of the rectum. Exceptionally, colostomy will have to be done to provide for proper emptying of the bowel. In cases of extensive destruction of the urethra and of the perineal tissues, autoplasty must be resorted to, making use of the scrotal tissues and of the skin of the thigh. When the posterior urethra is completely destroyed, with, perhaps, destruction of the anus, recourse must be had to a cystostomy, and sometimes to perineal urethrostomy with iliac colostomy if the anorectal lesions are irreparable.

FUNCTIONAL DISTURBANCES

Finally, when all these lesions have been repaired, if the patient still has functional disturbances, a periurethral abscess must be thought of, or a persisting foreign body, and the proper treatment instituted. The urethra having been repaired, it is important that the patient be taught the use of a dilator, or that he remain under supervision for a certain time, so as to prevent a narrowing or a deviation of the urethral canal. In order to secure a good view of the posterior urethra, it is desirable to have most ample access. Among the best procedures for exposing this region well, in an appropriate case, is the freeing of the median puboprostatic fascia.

DISCUSSION

Dr. Escat of Marseilles has seen 24 cases of trauma of the pelvic urethra, with accompanying bone lesions in 17 cases, anal or anorectal lesions in 12 cases, lesions of the bladder in 8 cases. By the time these cases reach the base hospitals, chronic infection is present, loss of tissue entailing fistulas and strictures. The trauma usually involves either the prostatic or the membranous urethra.

Dr. Michon of Paris advised that in the less severe or mild cases the treatment at the front should aim to approximate the torn ends of the urethra so as to make easier the surgical intervention which remains to be made at the rear. Suprapubic cystostomy should always be done in these cases because it is an easy means for draining the bladder, and favors constant supervision of the case. He has never found it necessary to perform a colostomy (iliac), and in order to prevent the development of pelvic cellulitis, he prefers to drain the pelvis through the perineum. The prolonged retention of the urethral catheter is not favorable to urethral suture. If it is feared that the subsequent introduction of dilators will be difficult, a conducting thread may be left in the urethra and drawn out through the suprapubic opening. The catheter may be attached to this guide.

Dr. Pasteau of Paris expressed the opinion that at the front in cases of wounds of the deep urethra, the wound should be opened widely, as much as the state of the patient will permit, the region thoroughly explored and provision made for ample and free drainage; the bladder itself should be drained through a suprapubic opening, and likewise any juxta-urethral focus which may have resulted from the trauma or the operation. On the other hand, at the rear, if the posterior urethra has been seriously injured, make a suprapubic cystostomy and drain the perineal region freely; avoid suture of the perineal fascial planes; search for the torn ends of the urethra, place them in apposition, using a retention catheter if necessary. Finally, open widely all the perineal foci and fistulas that may be present, and keep them open, for which purpose the suprapubic cystostomy is helpful. This is the best treatment, preventive and curative, of strictures from lesions of the deep urethra, in which the prognosis is always grave.

Marriages

Lincoln Humphreys, Asst. Surg., Lieut. (j. g.), U. S. Navy, North Little Rock, Ark., to Miss Julia Josephine Youngquist of St. Paul, at Washington, D. C., January 14.

Bret Albert Swartz, Lieut., M. C., U. S. Army, Los Angeles, on duty at Camp Kearny, San Diego, Calif., to Miss Daisy Stegg, also of Los Angeles, January 29.

Edmund Leo Finley, Rochester, N. Y., to Miss Irene Elizabeth Dunn of Rome, N. Y., February 18.

George Millard Dawson to Miss Margarethe Dittrich, both of New York City, February 12.

Deaths

Joseph James Kinyoun ⊕ **Major, M. C., U. S. Army,** Washington, D. C.; Bellevue Hospital Medical College, 1882; aged 58; who entered the U. S. Marine Hospital Service in 1886, and resigned from that service in 1902, with the grade of surgeon; professor of hygiene and bacteriology from 1890 to 1892, and of pathology and bacteriology from 1892 to 1899 in Georgetown University, Washington, D. C.; who on account of eminent sanitary services to the Republic of Venezuela was decorated with the Order of Bolivar in 1897; a member of the Association of American Physicians, Association of American Bacteriologists, and American Public Health Association; for many years bacteriologist of the Health Department of the District of Columbia, and on leave to accept commission in the Army; founder and first director of the United States Hygienic Laboratory; director of the H. K. Mulford Company Laboratories, from 1902 to 1907; on duty in the cantonments of North and South Carolina, until Dec. 6, 1918, when he was detailed as pathologist in the Army Medical Museum, Washington; died at his home, February 14, from lymphosarcoma of the neck.

Richard Ernest Kunze, Phoenix, Ariz.; Eclectic Medical College of the City of New York, 1868; aged 80; a practitioner of New York until 1896, also a doctor of pharmacy, and since that time a student and investigator in medical botany and insect fauna, in Arizona; a specialist in cactus; and an exporter from his cactus farm in Arizona of varieties of cactus to botanical gardens in all parts of the world; at one time president of the New York Therapeutic Society and corresponding secretary of his alma mater; author of many monographs on cactus; died at his home, February 10.

James Williamson Squires ⊕ **Capt., M. C., U. S. Army,** Charlotte, N. C.; North Carolina Medical College, Charlotte, N. C., 1911; aged 30; professor of rectal diseases in his alma mater; a specialist on roentgenology; who entered the service, June 16, 1917, and after serving at Fort Oglethorpe, Ga., and Rockefeller Institute, New York City, sailed for France, in August, 1917, and was on duty with the Yale Hospital Unit, November 30; died in the U. S. General Hospital, Toul, France, Dec. 16, 1918, from lobar pneumonia following influenza.

Aaron Shiner Oberly ⊕ **Capt., Med. Dir. U. S. Navy,** retired, Avon, Conn.; Yale University, New Haven, Conn., 1860; aged 81; who entered the navy, July 1, 1861; serving throughout the Civil War; was chief surgeon of the Adriatic Squadron, in 1886; and was retired after ten years and eleven months' sea service, Jan. 4, 1889, with the next higher grade to that held on the active list, on account of incapacity resulting from an incident of service; died at his home, February 15.

John Alfred Bodine ⊕ New York City; University of Louisville, Ky., 1893; aged 53; professor of surgery in the New York Polyclinic Medical School; attending surgeon to St. Johns Hospital, Long Island City, and to the Northwestern and Northern Dispensaries; a specialist in surgery; visiting surgeon to the Polyclinic Hospital; a fellow of the New York Academy of Medicine; dropped dead from heart disease in the New York Athletic Club, February 24.

Bedford Wagoner Russell ⊕ **Lieut., M. C., U. S. Army,** Strong City, Okla.; Epworth College of Medicine, Oklahoma City, Okla., 1909; aged 31; who had been on duty at Fort Riley, Kan., and was ordered to the U. S. Army General Hospital, Fort Des Moines, Iowa, for observation and treatment, January 3; and was discharged from the service, February 6; died at the home of his mother in Oklahoma City, February 13, from the effects of influenza.

Died in the Service
in North Russia
Lieut. Ralph E. Powers, M. C.,
U. S. Army, 1890-1919

Elton Bane Rogers ⊕ **Capt., M. C., U. S. Army,** Winchester, Idaho; Northwestern University Medical School, Chicago, 1907; aged 38; who after entering the service, was sent to the University Hospital, Philadelphia, for instruction, later to Camp Dix, N. J., and then on to Hoboken, N. J., May 25, 1918, for overseas duty; formerly local surgeon of the Milwaukee system at Dear Lodge, Mont.; died recently in France.

Elijah Stephens Kelley, Minneapolis; Rush Medical College, 1878; aged 72; at one time a member of the Minnesota State Medical Association; for four years health commissioner of Minneapolis; for one term police surgeon, and once physician of Hennepin County; died at his home, February 6, from influenza.

Andrew Aloysius Conlon, Chicago; Bellevue Hospital Medical College, 1885; aged 57; at one time a member of the Illinois State Medical Society; for nineteen years a member of the medical staff of the Chicago Department of Health; died at his home, February 19, from chronic parenchymatous nephritis.

Charles Newell Palmer, Lockport, N. Y.; New York University, New York City, 1865; aged 77; attending physician to the Lockport Tuberculosis Dispensary, and consulting physician to the Sister's Hospital, Buffalo; a member of the Medical Society of the State of New York; died, February 3.

Harold William Brown ⊕ **Lieut., M. C., U. S. Army,** Jersey City, N. J.; Cornell University, New York City, 1908; aged 32; on duty at Camp Leach, Washington, D. C., was found dead Nov. 3, 1918, from asphyxia, due to chloroform inhalation, self-administered, while in a state of melancholia.

Azariah Kinyon Jewell, Columbus, Ohio; Detroit College of Medicine and Surgery, 1905; aged 40; at one time a member of the Ohio State Medical Association, and local surgeon of the Cincinnati, Hamilton and Dayton Railroad; died at his home, January 9, from pneumonia following influenza.

Daniel Avery Langworthy, Minneapolis; College of Physicians and Surgeons in the City of New York, 1860; aged 87; captain of the 85th New York Volunteer Infantry during the Civil War; a pioneer lumber dealer of North Dakota; died at his home, January 14, from cerebral hemorrhage.

John Irwin Warder ⊕ Weston, W. Va., University of Maryland, Baltimore, 1879; aged 62; president of the Lewis County Medical Society; for three terms mayor of Weston, and once a member of the legislature from Lewis County; died at his home, February 9, from heart disease.

Ralph Edgar Powers ⊕ **Lieut., M. C., U. S. Army,** Akron, Ohio; Eclectic Medical Institute, Cincinnati, 1915; aged 28; on duty with the American Expeditionary Forces in North Russia, and senior medical officer of the 337th Ambulance Company, 339th Infantry; died, January 22, from wounds received in action.

John Alexander Lyons ⊕ Chicago; Long Island College Hospital, Brooklyn, 1889; aged 65; a member of the American Association of Obstetricians and Gynecologists; surgeon and gynecologist to the Chicago Hospital; died at his home, February 18, after an operation for appendicitis.

William B. Callender, Stockton, Kan.; Drake University, Des Moines, Iowa, 1887; aged 63; at one time a member of the Kansas Medical Society; for twenty-six years local surgeon for the Missouri Pacific system; died in the Concordia (Kan.) Hospital, February 5.

George Heman Sadelson, Charlotte, N. C.; University of Buffalo, N. Y., 1876; aged 64; a member of the Medical Society of the State of North Carolina; a specialist on dermatology and tuberculosis; died at his home, February 10, from influenza.

Henry Nollner Rosser, Birmingham, Ala.; Emory University, Atlanta, Ga., 1869; aged 76; a member of the Medical Association of the State of Alabama; for eight years health officer of Jefferson County; died at his home, January 24.

⊕ Indicates "Fellow" of the American Medical Association.

Willis Henry Maxson, Oakland, Calif.; University of Michigan, Ann Arbor, 1883; aged 63; at one time a member of the Medical Society of the State of California; died in a sanitarium in Berkeley, Calif., February 4, from heart disease.

Levi Hornor ⊕ Wichita, Kan.; Kansas City (Mo.) Medical College, 1886; aged 62; for several years physician of Sedgwick County and a member of the local board of education; died in a drug store in Wichita, February 6, from heart disease.

Charles Nicholas Van Denberge, Philadelphia; Albany (N. Y.) Medical College, 1897; aged 41; at one time a member of the Medical Society of the State of New York; died in Philadelphia, January 22, from acute pyonephritis.

Charles Orth, Rock Creek, Ohio., formerly of Pittsburgh (license, Allegheny County, Pa., 1881); aged 99; surgeon of U. S. Volunteers throughout the Civil War; died at the home of his son, in Rock Creek, January 29.

Earl Lawrence Uhl ⊕ Baldwin City, Kan.; Rush Medical College, 1911; aged 33; a specialist on diseases of the ear, nose and throat; died at his home, February 10, from empyema following pneumonia.

William E. Poulton, Washington, D. C.; Georgetown University, Washington, D. C., 1864; aged 79; a member of the Medical Society of the District of Columbia; died at the home of his son, February 14.

Edward Sartor Stewart ⊕ **Lieut., M. C., U. S. Army,** Summertown, Tenn.; Vanderbilt University, Nashville, Tenn., 1911; aged 32; died at Camp Greenleaf, Ga., Oct. 19, 1918, from left lobular pneumonia.

Julian Rush Sutton ⊕ Black Mountain, N. C.; University of the South, Sewanee, Tenn., 1904; aged 38; died in the Mission Hospital, Asheville, N. C., Oct. 30, 1918, from pneumonia following influenza.

Guy Clayton Bowe, Cleveland; Northwestern University Medical School, Chicago, 1895; aged 49; a member of the Ohio State Medical Association; died at his home, February 5, from pneumonia.

Samuel H. Robertson, Crisfield, Md.; University of Maryland, Baltimore, 1853; aged 85; for several years superintendent of the public schools of Somerset County; died at his home, February 21.

John S. Rome, Los Angeles; University of Michigan, Ann Arbor, 1866; aged 78; formerly a resident of Calmar, Iowa, and a member of the Iowa state legislature; died at his home, about February 5.

Herbert Lawson Williams, Pittsburgh, Pa.; University of Pittsburgh, 1918; aged 24; died in the Ohio Valley General Hospital, Pittsburgh, February 3, from the effects of a gunshot wound.

John M. West; Red Bluff, Calif.; Rush Medical College, 1864; aged 82; formerly a member of the Medical Society of the State of California; died in Red Bluffs, Calif., February 10.

John D. Hess ⊕ **Capt., M. C., U. S. Army,** Clarkton, Mo.; Washington University, St. Louis, 1900; aged 41; on duty at Fort Bliss, Texas; died, Oct. 17, 1918, from pneumonia.

James Wiltse ⊕ Brewster, N. Y.; Bellevue Hospital Medical College, 1890; aged 54; health officer of Putnam County; died at his home, February 2, from lobar pneumonia.

Andrew B. Lennington ⊕ Maybee, Mich.; Detroit College of Medicine and Surgery, 1900; aged 51; died suddenly at his home, February 6, from intestinal obstruction.

John Awvill Pennington ⊕ **Lieut., M. C., U. S. Army,** New York City; University of Tennessee, Nashville, 1918; aged 26; died, October 4, 1918, from influenza.

Jay Amherst Latimer ⊕ Claremont, Calif., Cleveland College of Physicians and Surgeons, 1898; aged 44; died at his home, January 24, from pneumonia.

Mary Henrietta Rowland, Davenport, Ia.; Hahnemann Medical College, 1866; aged 68; died at her home, February 7, from nephritis.

Luman L. Wescott, Chicago; Chicago Homeopathic Medical College, 1898; aged 52; died at his home, February 11, from arteriosclerosis.

Henry W. Shirley ⊕ Shoals, Ind.; Medical College of Ohio, Cincinnati, 1878; aged 76; died at his home, January 28, from angina pectoris.

Solomon W. Biddinger, Hartsville, Ind. (license, Indiana, 1897); aged 85; a practitioner since 1857; died at his home, about February 6.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PHARMACEUTICAL MANUFACTURERS AND "PRIVATE FORMULA" PRODUCTS

To the Editor:—American makers of pharmaceuticals have for many years considered it commercially ethical to make legitimate pharmacal products according to so-called, "Private Formulæ" submitted for manufacture by reputable physicians and druggists for their own dispensing. To do otherwise would be an untenable refusal on the part of the manufacturer to serve the interests and supply the needs of a rather large clientele through his laboratory. Logically in these transactions the manufacturer's obligations begin and end with the correct manufacture of the product and the use of the materials specified by the patron. To hold the manufacturer even remotely responsible for the ultimate dispensing or distribution of such products manifestly would be an impossible requirement.

Our inflexible rule is that all such "Private Formulæ" orders as are evidently intended for public distribution and not for personal dispensing by physicians or druggists, are positively refused acceptance until the "copy" for the "literature" has been critically studied by experts on our New York office staff. This is particularly true of all such orders coming from Spanish-speaking countries where it appears to be the fact that misrepresentations and exaggerations in such "literature" are not so critically censored as in the U. S. A.

The head of our Spanish Export Department personally censors all such "copy"; in his absence this is done with equal care by his first assistant. Naturally we must depend on the loyalty and integrity of these business associates for a correct translation into English and a rigid censorship of all such "copy" since we ourselves are not intimately familiar with Spanish. Probably at the present time, now that you are issuing a Spanish edition of The Journal, your own dependence on Spanish-speaking colleagues for ethical accuracy and the avoidance of error is keenly appreciated by the editorial staff of The Journal.

We have never knowingly accepted or filled an order for a product the ultimate disposition of which was to be accomplished through misrepresentation or fraud. For years we have had two druggist patrons in Arecibo, Porto Rico—both men of good repute; both patrons submitted orders for "Private Formulæ" products in 1915. Three such products were ordered; each order was accompanied by "copy" in Spanish to be used by us for them on the labels and circulars.

The head of our Spanish Export Department was away on a commercial trip in Latin-America when these orders arrived in New York. His first assistant was temporarily ill. His second assistant, a Spanish-speaking man, took the responsibility of passing on this "copy" and he O.K.'d it as being correct and in compliance with our rigid rules as to accuracy of statement and these orders with these pieces of "copy" in Spanish were sent by him to our Private Formula Department at Baltimore. The superintendent of that department at Baltimore, knowing nothing of the absence from New York of the head of the Spanish Export Department and therefore naturally assuming that these pieces of Spanish "copy" had been properly censored, accepted these orders in good faith.

The goods were made up, labeled with the Spanish "copy" and were shipped to our Porto Rican patrons. On their arrival in Porto Rico they were inspected by American experts and these inspectors at once determined from the printed matter on and around the packages that the products were "misbranded" and in due time, we, as the manufacturers, were notified to that effect. The moment we saw for the first time an accurate translation of the Spanish "copy" we recognized the fact that we had been misled by our Spanish office assistant and promptly discharged him for the offense.

To facilitate the removal of the cases from the docket and at the urgent solicitation of our attorney and with the concurrence of the court we paid the nominal fine in each case, which later on was refunded to us by the customer. At the same time we notified these two patrons that we insisted on their withdrawing the three products from the market until every package was redressed with new labels and circulars in the wording of which none but true statements were to appear. It is to the credit of both men to say that both cheerfully acquiesced and both had every package redressed properly before a single package was offered for sale.

Our reason for inflicting this lengthy communication on your readers is that through the publication in Volume 72 of The Journal (see page 60, Jan. 4, 1919) Sharp & Dohme is by inference held out as being *particeps criminis* and as the originators and promoters of these three undoubtedly "Misbranded Nostrums." The injustice of that inference must appeal at once to all fair-minded men who through reading the foregoing statement of absolute facts must concede that we were and are innocent of any intentional cooperation with this "misbranding."

Therefore it is with a keen appreciation of your fairness to all houses of good repute that we ask that you give this communication a place in the widely read Journal, thereby affording us an opportunity of putting ourselves in the right light before the large group of ethical physicians whom we have honestly served for so many years and whose respect and confidence we feel that we can justly expect to retain.

Sharp & Dohme.

P. S.—The subjoined imprint appears on every invoice of "Private Formulæ" preparations:

> "We hereby guarantee that the Private Formula preparation here invoiced was made according to the formula furnished to us. It is mutually agreed that we are not responsible for its disposition nor for any claimed medicinal action.—Sharp & Dohme."

[Comment.—The letter above is published because the house of Sharp & Dohme, as a reputable business concern, feels that it has been done an injustice by the publication of three brief items, abstracted from federal reports. These reports, of course, gave no hints of the fact that these preparations were "private formula" products. The Journal is willing to admit that there was a possible injustice done Sharp & Dohme in that its readers would naturally infer that these three misbranded "patent medicines" were *sold under the name of* Sharp & Dohme, instead of *being made by* Sharp & Dohme, to be sold by some one else. There is, unfortunately, a commercial distinction between these two facts; whether or not there is any moral difference between profiting by the manufacture of a "patent medicine" that is to be retailed by somebody else, and selling the same medicine under one's own name, is a question that may safely be left to the medical profession to answer.—Ed.]

MORE MISBRANDED NOSTRUMS

Alkavis.—Shipped, June, 1915, by M. Agnes Jamieson, trading as the Alkavis Co., Detroit. Analysis showed the preparation to be essentially a solution containing potassium nitrate, sodium benzoate, glycerin, and vegetable extractives. Falsely and fraudulently represented as a remedy for diseases of the kidneys, liver and urinary organs. Fine, $50.—[*Notice of Judgment No. 5247.*]

Sulferro-Sol.—Shipped in November, 1917, by the Sul-Ferro-Sol Co., Inc., Birmingham, Ala. Falsely and fraudulently represented as a remedy for pellagra, kidney and bladder trouble, rheumatism, tuberculosis of the bone, etc. Court entered judgment of condemnation and forfeiture and ordered that the product be destroyed.—[*Notice of Judgment No. 6087.*]

"Gonorrhea and Gleet 3 Day Cure"; "Old Indian Fever Tonic"; "Pain-I-Cure"; and "Walker's Dead Shot Colic Cure."—Shipped in February, 1916, by the Walker Co., Atlanta, Ga. The "Gonorrhea and Gleet 3 Day Cure," when analyzed, appeared to be a solution of zinc sulphate and sulphocarbolate, boric acid, opium and hydrastin. The "Old Indian Fever Tonic" appeared to be a solution of Epsom salt and quinin sulphate, acidified with aromatic sulphuric acid, and colored red with coal tar dye. "Pain-I-Cure" contained over 74 per cent. of alcohol with morphin, red pepper, camphor, and oils of sassafras and cloves. "Walker's Dead Shot Colic Cure" contained over 77 per cent. of alcohol with essential oil, asafetida, guaiac, morphin, camphor, and red pepper. All four products falsely and fraudulently represented. Fine, $50 and costs.—[*Notice of Judgment No. 5781.*]

Correspondence

POSTINFLUENZAL DISTURBANCES OF THE NERVOUS SYSTEM

To the Editor:—Postinfluenzal diseases of the cerebrospinal axis are of common occurrence. They followed in the wake of the last great epidemic and were well described at that time. That there can be a primary invasion of the nervous system, the general signs of an infection being secondarily determined, does not seem from recent observations of mine to be sufficiently kept in mind. In the last two months I have seen in consultation or have had referred to me patients who presented syndromes which at first did not seem to have any connection with our present epidemic: 1. They had not been preceded by bronchial or respiratory symptoms or by temperature elevation. 2. Most of these patients, however, complained of neuralgic pains, headaches or drowsiness almost from the beginning. 3. A slight increase of the body temperature, accompanied as a rule by no rise of the pulse rate, by a low blood pressure and by the characteristic inertia of mind, has followed the paralyses, etc. These general signs have been observed as a rule on about the fourth or fifth day of the disease. 4. A lymphocytosis of the cerebrospinal fluid has been invariably reported. This has varied from 22 cells (paralytic chorea syndrome) to 192 cells (general paresis syndrome). 5. All patients have had a fairly acute onset and recovery has been the rule.

I wish to record briefly certain instructive observations:

One patient presented himself with pronounced twitchings and fibrillary tremor, bleating speech, Argyll Robertson pupil and a dementia. The onset was acute. There was no ethical deficit as in true paresis, however. Nor was there the ever-present erethism or depression of the true paralytic dementia. Two days after I first saw this patient, a rise in temperature was observed and the ordinary influenza symptoms came on. In two weeks, he commenced to recover. His memory returned, his tremors subsided, his speech bettered itself, and his eyes reacted again to light. It was in this patient that a lymphocytosis of 192 was reported.

The frequency of encephalitis unaccompanied by frank meningitic symptoms has been reported before. Multiple cranial palsies without a previous history of infection have been observed by me in five consultations during the last two months. In no case were bulbar symptoms present. Their onset was acute. A diplopia seems to have preceded all other symptoms. The uniform recovery in these cases excludes a hemorrhagic type of encephalitis and would indicate a toxic basis. All the patients were apathetic, inert and dull for the several weeks it took the paralyses to clear up. Two of them developed a fever with a drop of blood pressure a few days after the initial paralysis. All had a lymphocytosis. In one case, Pfeiffer's bacillus was reported on culture. The symptoms varied somewhat, but included ptosis of the eyelid, diplopias of various types, facial paralysis, and brachial paresis. All the patients had a miosis, a failure of the accommodation reflex, and an almost absent pupillary light reaction. Absent reflexes on one or both sides of the body were noted. I imagine that transient diplopias must have been very common from conversations with various general practitioners. Ophthalmoplegia after or during infections is, of course, a commonplace. At present these toxic ophthalmoplegias and diplegias are occurring in too large a number not to be significant in connection with the present epidemic.

I have noticed also an unusual number of unilateral choreas this winter with pronounced paralytic symptoms. Have they any connection with influenza? I have not been able to study them from the laboratory standpoint to have an opinion.

I was confused in two cases by a close similarity in symptoms to cerebrospinal syphilis. Mental dulness, with a facial diplegia or a brachial monoplegia and oculomotor paralyses, accompanied by a lymphocytosis, does not always represent a syphilitic picture. The difference lies in the absence of a premonitory period, the comparative absence of a general breakdown preceding the onset of the palsies, and the early and pronounced mental dulness. The palsies were not so fugacious as in true cerebrospinal syphilis and disappeared more progressively; and, of course, the Wassermann and colloidal gold tests are always negative, despite the increased lymphocytosis. Both patients had an accommodation spasm with miosis.

Edward E. Mayer, M.D., Pittsburgh.

"OHIO FINDS A BETTER WAY"

To the Editor:—Allow me to congratulate you on the stand you take in endorsing the action of the Ohio State Medical Association on throwing the responsibility of public health on the legislature by not opposing bills licensing certain cults and sects.

During the last thirty years while going to the legislature opposing bills of the osteopaths, Christian scientists and the like, I came to the conclusion that the best way to deal with them is to ignore them.

L. W. Zwisohn, M.D., New York.

A PROTEST AGAINST THE SENDING SOUTH OF INDIGENT TUBERCULOSIS PATIENTS

To the Editor:—May I protest against physicians in other parts of the country telling indigent tuberculous patients to go South for the winter? For the past few years, an average of thirty transient tuberculous people have died each year in our community. We have no proper place as yet to care for our own tuberculous, and the migratory consumptive adds greatly to our problem. Plans are under way for a county sanatorium at Jacksonville. There is no state institution and at present no private institution in Florida for the care of tuberculosis.

William W. MacDonell, M.D., Jacksonville, Fla.
City Health Officer.

THE SUPPLY OF PRACTICAL NURSES

To the Editor:—Since the necessity of presenting a nursing bill at the present session of the Illinois legislature became known, an honest effort has been made to try to remove some of the nursing difficulties of the state. To help overcome the shortage of nurses, the course of thirty-six months for the registered nurse has been cut down in a proposed bill to a minimum of twenty-seven months, and a course of eighteen months established for a new group, this also to be registered.

To assure the eighteen months' nurse being kept for the bedside care of the sick, a restriction preventing her doing public health work, acting as a supervisor, instructor or executive, has been made. This seems worth trying, as one great cause of the shortage of the private duty nurse is her absorption into other forms of nursing.

The need of a part nurse, part housekeeper in the home is fully appreciated, but it seemed unwise to incorporate in a possible law a type that had not yet been successfully developed. Long observation seems to show that most private duty nurses, after the first enthusiasm wears away, either are unwilling to do household duties or get discouraged and give up private duty. The advice of the women at the head of the homes would be valuable as to the practicability of one woman continuously nursing the sick and caring for the home at the same time.

It seemed equally unsound to introduce into a law the experimental short course nurse, with the fear of sending into the field many but poor nurses; and out of consideration for the hospitals whose sick need equal consideration, eighteen months as the shortest period was finally settled on.

The effort of carrying a registered nurses' school has undoubtedly become burdensome to some hospitals, and it is unjust that those institutions should have to carry heavy educational problems in addition to their many responsibilities or be considered not accredited. It has been thought that with the two groups of women, hospitals might decide which type of school they wished to conduct—the registered nurse school with the expense of many instructors and equipment, or junior registered nurse school, equally dignified and important, giving in eighteen months an intensive instruction to qualify for good bedside nursing care, having class instruction in practical nursing, invalid cooking, personal and home hygiene, and possibly a little anatomy and physiology.

The name of Junior Registered Nurse was not given in a feeling of patronage or to indicate inferiority either for the school or for the woman. It is usually granted that a twenty-seven months' course is more advanced than an eighteen months' period, and it is in this sense alone that the term was applied. The words Junior Registered Nurse also indicate that, should the woman care to, she may at some time qualify for Registered Nurse. Neither the Registered Nurse nor the Junior Registered Nurse will carry the title Registered around with her, and both will be called nurse. Restrictive clauses specifying those who may nurse for hire will make it a mandatory law if passed.

While most nurses advise against an entrance age under 21, practical reasons and public demand have placed the age at 19. It has been thought that in this age of general education one year high school entrance has not been too much to ask.

The other points of the bill deal with administration. The majority of the registered nurses in Illinois have endorsed this bill as a possible solution of a difficult situation. It cannot be attempted or successfully worked out without the cooperation of every interested person, the medical profession to understand and interpret it to the community, the nurses realizing the opportunity to perform a valuable service by developing and welcoming this second group of registered nurses and the department of the state, under which the schools will be administered, exercising a just control.

M. H. McMillan, Presbyterian Hospital, Chicago.
President, Illinois State Association of Graduate Nurses.

[Dr. M. L. Harris, representing the Illinois Hospital Association, comments:]

To the Editor:—The people have long experienced difficulty in securing nurses who are willing to wait on the sick, and the seriousness of the situation was greatly accentuated during the recent epidemic. Not only is there a shortage of nurses, but there is a growing tendency on the part of the registered nurse to escape doing private duty or actual nursing. Both of these facts have been recognized by the people, who are demanding that something be done to remedy the situation.

The nurses' organization recently introduced into the legislature of Illinois a nursing bill which they believe to be "an honest effort to try to remove some of the nursing difficulties of the state." If its proposed bill will remove the existing difficulties and enable the sick to secure some one to wait on them during their illness, it is a good bill; but, if it does not remove the difficulties, then some bill should be substituted for it which will.

Referring to its bill, it is casually remarked in the preceding letter that "restrictive clauses specifying those who may nurse for *hire* will make it a mandatory law if passed." The first paragraph of the proposed law provides that it shall be unlawful for any person to nurse the sick who is not a registered nurse or a junior registered nurse. The question of "hire" does not enter into [illegible] A person [illegible]ld not render even gra[illegible] [illegible]e sick; no[illegible] [illegible]y that, but the bill [illegible] brothers of religious organizations that conduct hospitals from nursing the sick either in their hospitals or in the patients' homes, and would likewise exclude from nursing all male nurses and all unregistered nurses, even though graduates, unless they chose to register—and many of them do not so elect—and all practical nurses, however great the necessity for their existence may be, and however great the good that they may do.

The number of sick persons well cared for every day by these large groups amounts to thousands. Under the proposed bill, it would be imposible for these suffering sick to obtain any one to take care of them, either for hire or as a gratuitous service, unless they were able to secure the services of a registered nurse. Unfortunately there are not enough registered nurses to meet the demand; hence under the proposed law at least nine out of ten of the sick would be compelled to be without a nurse's care, except such as might be rendered them by members of the family.

Could a law that would make it impossible for a sick person to secure some one to wait on him during his illness be considered anything but inhuman? It is proposed to help this situation by establishing a new group of nurses to be given an eighteen months' course of training, and to be known as Junior Registered Nurses.

These Junior Nurses are to be the real nurses of the sick. They are to do all the actual work, while the registered nurse is to do all the supervising. Note the wording of the letter: "To *assure* the eighteen months' nurse being *kept* for the bedside care of the sick," the law is to prevent her from doing anything else. Under the proposed bill the registered nurse is permitted to do all the supervising and executive work, all the teaching and instructing, all the institutional work, and all the public health work; in other words, all the supervising, while the Junior Nurse is made to do all the waiting on the sick. The bill reads as follows: "A Junior registered nurse may nurse the sick or disabled, but may neither engage in public health nursing, act in a supervisory capacity, in a hospital or similar institution, act as an instructor or in a supervisory capacity in a school of nursing, nor act as an instructor or in a supervisory capacity in public health service or any other like service." Moreover, she is not permitted to nurse in a hospital except "when under the immediate personal supervision of registered nurses."

The slave was chained to the galley for life, but that was centuries ago. Can it be that we are returning to that age? Is it possible that the law is to be invoked to create class, to keep a person to a particular work, and to prevent the person from doing anything else? No matter what the Junior Nurse's ambitions may be, no matter what her ability as a teacher, as an instructor, as a supervisor or as an executive, may be; no matter what her aptitude for public health service may be, she is to be prohibited by law to do any of these things or any other similar things.

What evidence is there that "the effort of carrying a registered nurse school has undoubtedly become burdensome to some hospitals"? The hospitals own and maintain practically all of the training schools. Hospitals are conducted for the welfare of the sick, and nursing is essential to their welfare. It is desirable that the expense connected with the care of the sick should be maintained at the lowest point consistent with the highest type of service. A training school in connection with a hospital is the most economical way of providing the best nursing for the sick; then why should hospitals wish to give up their training schools when they know that the expense of caring for their sick would thereby be greatly increased? There is no objection to any hospital prescribing its own qualifications and giving courses of any length which it may desire in order to produce the highest type of instructors, public health and social service workers, and the like; but the people demand and must have some one to care for them when they are sick, and the hospitals, through their training schools, must supply the demand.

True, the preceding letter states that "the words Junior Registered Nurse also indicate that should the woman care to, she may at some time qualify for registered nurse." The words are the only thing that indicate it, for the law makes no provision for her ever becoming anything but a Junior Nurse. That the present day registered nurse is not waiting on the sick is shown by the statement that "one great cause of the shortage of the private duty nurse is her absorption into other forms of nursing." What are "these other forms of nursing"? Institutional work, supervising the work of others, public health work, social service work, etc., most of which are not forms of nursing at all. Not that this line of work is not most valuable and important, for it is, and should be encouraged and extended; but if the registered nurse does not care to wait on the sick, let us have some one who does. Because the registered nurse does not care to nurse the sick, she has no right to say that others who wish to shall not nurse, nor has she any right to say that that nursing shall be dōne only under her supervision.

If the present day system of training the registered nurse is unfitting her for private duty nursing, then there is something wrong with the system, or something wrong with the individuals doing the training. No one familiar with the subject will attempt for a minute to deny that there is a large field for the well trained, well educated specialist in nursing; nor would any one think of restricting or hindering the progress and development of those who are interested in this line of work; but what the great mass of people need and demand is a nurse who will wait on them when they are sick, and who will carry out the orders of their physician.

The proposed bill which the Nurses' Association has presented not only does not supply this great need, but it deprives the people of much of the service along this line which they now have.

M. L. Harris, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"ROACHES IN A SANATORIUM"

To the Editor:—Referring to a recent query (The Journal, Feb. 15, 1919, p. 515) as to the best method of exterminating roaches in a sanatorium, it has been my experience that the *one* best method for ridding an institution of these insect pests is the careful shutting off of their food supply.

All material that might serve as food for hungry roaches should be kept in tins or insect-proof boxes with properly adjusted and tightly fitting covers. When ventilation is necessary for the preservation of foodstuff, covers should be made of wire gauze with moderately fine mesh. No food scraps of any kind should be allowed to lie around after meals, but should be promptly deposited in a metal-covered garbage can.

This is the first and most important step in ridding a badly infested building of cockroaches, and unless it is properly attended to, the use of roach poison frequently does not result in the extermination of roaches.

L. D. Fricks, M.D., Louisville, Ky.

Surgeon, U. S. P. H. S., Medical Officer in Charge, Camp Zachary Taylor, Civil Sanitary District.

LIMIT OF TAXATION OF OFFICERS' INCOMES

To the Editor:—Please inform me whether or not an officer of the Medical Reserve Corps who has no income other than from the government pay for services is subject to an income tax; that is, is pay from the United States government subject to income tax, or is it exempt?

C. H. Otken, M.D., McComb, Miss.

Answer.—As indicated under Item 1, Heading III, page 1, of instructions on income tax returns, "Pay not exceeding $3,500 for active service in the Military and Naval Service of the United States" is exempt from income tax. This applies to 1918 income only. According to this exemption, physicians in active service in the Army and Navy need not pay income tax on their salaries unless the amount of the salary for 1918 was more than $3,500.

PENDING LEGISLATION FOR EXTRA PAY

To the Editor:—Has a bill been passed by Congress authorizing the payment of one month's extra salary to officers or men honorably discharged from the Army or Navy? Please omit my name. M. W. R.

Answer.—Such a bill has not been passed, although provisions for extra pay are included in pending legislation.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.

Arizona: Phoenix, April 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

California: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, April 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. L. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Pocatello, April 1-2. Sec., Dr. Ray H. Fisher, Rigby.

Illinois: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Iowa: Iowa City, March 24-26. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Maine: Portland, March 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 1-4. Sec., Dr. T. S. McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

National Board of Medical Examiners: Philadelphia, June 2-7. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

New Mexico: Sante Fe, April 14-15. Sec., Dr. W. E. Kaser, East Las Vegas.

Oklahoma: Oklahoma City, April 8-9. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 7-8. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

Book Notices

United States Army X-Ray Manual. Authorized by the Surgeon-General of the Army. Prepared under the Direction of the Division of Roentgenology. Leather. Price, $4 net. Pp. 506, with 219 illustrations. New York: Paul B. Hoeber, 1918.

Although written to satisfy military requirements, this manual is a rich epitome of roentgenology. For civil purposes there would have been less space devoted to projectile localization, but otherwise the rudiments of the subject are set forth in well-balanced and masterful style. The contents represent the combined work of several of America's most competent roentgen workers, who aimed to furnish the most valuable handbook for military roentgenologists in the making. Their manual will outlast its purpose because it is almost of equal use as a handbook in civil work and has been made available to the civil public.

Les plaies de guerre et leurs complications immediates. Leçons faites a l'Hotel-Dieu. Par Henri Hartmann, Professeur de Clinique Chirurgicale. Paper. Price 8 francs. Pp. 200, with 58 illustrations. Paris: Masson et Cie, 1918.

This volume consists of a series of eighteen lectures, given by the author at l'Hotel Dieu during the winter semester of 1916 and 1917, in which he endeavored to present as briefly as possible the experiences gained during three years of war. In discussing bullet wounds in general the author states that there is no question that the enemy used explosive bullets; but he does not believe that they were frequently used—not that there were humanitarian reasons but because the explosive bullet does not travel so fast or so far as the full jacketed bullet. In the treatment of war wounds, at least those made by shrapnel, shells, etc., the general principle seems to be fairly well established that the wound should be operated on as soon as possible and all foreign bodies, including tissue débris and the walls of the tract, should be removed, leaving only clean, healthy surfaces, which should be brought together at once in the hope of securing primary union. If this method of treating wounds is thoroughly carried out early, that is, during the first few hours, before infection has well started, the majority of the wounds will heal without suppuration. Even in the case of fractures and wounds of the large joints, this line of treatment may be carried out successfully in a majority of the cases. If infection has already set in, this method of treatment, of course, should not be carried out, so far as the primary closing of the wound is concerned. In discussing shock, the author is inclined to accept Crile's theory. The excellent work done by American investigators at the front on this subject, of course, was not available at the time these lectures were given. The question of the treatment of wounds of the abdomen is still a subject of much discussion. The unavoidable incidental conditions of warfare are so important in this connection that they are largely the determining factor in deciding as to the desirability or not of operating in a given case. The lectures are interesting and instructive in showing what the French surgeons were able to accomplish during the war.

Information for the Tuberculous. By F. W. Wittich, A.M., M.D., Instructor in Medicine and Physician in Charge Tuberculosis Dispensary, University of Minnesota Medical School. Cloth. Price, $1. Pp. 150. St. Louis: C. V. Mosby Company, 1918.

Dr. Wittich's book is an elaboration of the weekly talks given by the author to patients in tuberculosis sanatoriums and is an effort to answer the questions asked by patients on first learning that they are tuberculous and during treatment for their disease. The fact that the author was himself at one time a patient at Saranac Lake gives him an opportunity of recording his experience both as a patient and as a physician. The advice and information given are in keeping with the best developments of sanatorium treatment.

Applied Bacteriology. Studies and Reviews of Some Present-Day Problems for the Laboratory Worker, the Clinician, and the Administrator. Edited by C. H. Browning, M.D., D.P.H., Director of the Bland-Sutton Institute of Pathology, the Middlesex Hospital. Contributors: C. H. Browning, W. Gilmour, R. Gulbransen, T. J. Mackie, S. Russ, J. F. Smith and L. H. D. Thornton. Cloth. Price $2.50. Pp 291, with 4 illustrations. New York: Oxford University Press, 1918.

This book deals with the diagnosis of enteric infections, studies on antiseptics and antibodies, tetanus, etc. Much of the material has already appeared in separate papers in British medical journals. The book will be useful to laboratory workers.

Medicolegal

Giving Treatments Regardless of Ailments

(State v. Fenter (Mo.), 204 S. W. R. 733)

The Springfield (Mo.) Court of Appeals, in affirming a judgment of conviction of the defendant, a chiropractor, of illegally practicing medicine and surgery, says that he contended that he was entitled to an instruction to the effect that, if he treated or attempted to treat Mrs. Mustain at her request and without any reference to her ailments, or whether she was sick or well, the jury should find him not guilty, and that he requested such an instruction, which was refused. If such a mental attitude on the part of the defendant could be tortured into a defense to the charge of treating the sick and infirm without complying with the law regulating the practice of medicine and surgery, then the law would be practically a nullity. Besides, there was no substantial evidence on which to base such an instruction. The defendant testified that in the particular case of Mrs. Mustain he did some work on her spine with his hands that might be called manipulations, and applied force with his hands to her spine, but did not represent to her that it was a corrective agency, or that it would take five or six or seven adjustments. The evidence further showed that the defendant treated Mrs. Mustain at his office several times, and visited her eight times, and made regular charges. In the defendant's office were an operating or manipulating table, an electrical machine, charts of the spinal column and nervous system, and the backbone of a human [illegible] at the entr[illegible] of the stairway [illegible] to the [illegible] sign indica[illegible] character of his business, and a like sign on his office door. Mrs. Mustain went to the defendant for treatment for physical infirmities, and he treated her; and if it were conceded that he did not tell her the purpose or object of the treatment he was giving, that could make no difference. Mrs. Mustain knew the purpose or object intended by the treatment, and that was to give her such relief as the treatment might give. The court thinks that the instruction was properly refused.

Valid Contract of Third Party to Pay Bills

(Meyers v. McKillop (Calif.), 173 Pac. R. 773)

The District Court of Appeal of California, Third District, in affirming a judgment rendered in favor of the plaintiff for services rendered by him as a physician and surgeon, and by his assignors, a Dr. Johnson and the Sacramento Valley Hospital, a corporation, says that the only question was whether the evidence warranted the court in finding that the transaction between the plaintiff and the defendant created an original or primary obligation on the part of the latter, it being the defendant's contention that he was, at most, a guarantor, and that the obligation was void because not in writing. The facts were similar, and the same question was presented in the matter of the two small assigned claims. This court thinks there can be no doubt that the theory of primary liability adopted by the trial court found sufficient support in the record. The services were performed for one Williams, and the plaintiff was called to attend him, October 5. Two days thereafter, according to the plaintiff's testimony, he had the following conversation with the defendant at the Sacramento Valley Hospital:

> I asked him whether he would pay Mr. Williams' bill. I told him I had an understanding he was going to pay the bill, and he said he would. I told him perhaps we had better make the sister feel more easy about the money. When we went down stairs, I repeated the conversation in front of Sister Marie, and the substance was that he was to pay Mr. Williams' bill.

He furthermore testified:

> I made three calls on the 7th; on the 8th three calls; on the 9th there were five calls made; and on the 10th he was operated on by myself, Dr. Johnson and Dr. Wilson. I called on him twice subsequent to the operation; on the 11th I called three times; on the 12th I called four times; and on the 13th three times the day he died.

These services, performed after his conversation with the defendant, were reasonably worth, so he said, the sum of $305, and this was allowed by the court.

It is a fair inference from the foregoing that these services were performed on the reliance that the defendant would pay, and it is also a fair inference that the latter directly promised to make such payment. This constituted an original contract, with a sufficient consideration for its support. It was true that the plaintiff was originally called by one Barnholdt, but there was no evidence that he was employed by the latter or by Williams, or that he looked to either for his compensation. At any rate, this court may eliminate the services performed on the 5th and 6th, as did the trial judge, and consider only what was done after the conversation with the defendant. This may be considered a separate and distinct contract, and this court sees no legal obstacle in the way of enforcing it. It was true that the defendant denied any agreement for the payment of the claim, but the court below obviously did not believe him, and this court cannot say that the want of faith was not justified.

There was a finding, following the allegation of the complaint, that

> Within two years last past plaintiff within the county of Butte, state of California, rendered medical and surgical services to one F. J. Williams at the special instance and request of the defendant, and defendant promised and agreed to pay the value thereof.

The allegation in the complaint was certain and definite enough to withstand the general demurrer which was interposed, and the exact time covered by the services for which the defendant was held liable was revealed by the evidence; the amount found due corresponded exactly with the testimony as to the value of these services; and this court sees no merit in the claim that it did not appear from the findings what period was covered by them.

Society Proceedings

THE INSTITUTE OF MEDICINE OF CHICAGO

Meeting held Feb. 21, 1919

The President, Dr. Hugh T. Patrick, in the Chair

SYMPOSIUM ON INFLUENZA

Epidemiology of Influenza

E. O. Jordan: The present epidemic has a much higher mortality than has been recorded in any of the other outbreaks of which I have been able to find record. The epidemic of 1890 was more severe than that of 1848, and the present epidemic was more severe than that of 1890. In the state of Massachusetts the deaths in 1890 amounted to 2,500; in the present epidemic, to 15,000—six times as many; and yet the population of Massachusetts had not quite doubled in twenty-eight years. The U. S. Census Bureau in its last report recorded 136,000 deaths from influenza and pneumonia in four years, while during this epidemic there have been from 600,000 to a million deaths from influenza and influenzal pneumonia in the United States since the middle of September. This number of deaths from influenza and influenzal pneumonia does not represent all the deaths due to this infection. I have recorded the number of deaths in the four large cities in the country, deducting the influenzal pneumonia component. These figures are for the month of October alone. In the city of New York there were 1,400 more deaths in 1918 after the influenzal pneumonia component had been deducted, and the same in Chicago, an increase of nearly 600 deaths. In Philadelphia and Baltimore, where the epidemic was more severe, the increase is more marked—an increase of more than 50 per cent. in Baltimore, deducting the influenzal pneumonia component; that is to say, there has been a large number of deaths reported from other causes that really ought to be attributed to influenza. Some of the deaths are reported under organic heart disease. For the month of October, 1917, in New York there were 464 deaths, to 1,228 in the same month of 1918. In Chicago there were 232 in 1917, against 512 in 1918. In Philadelphia the number was almost doubled.

In the number of deaths from pulmonary tuberculosis, there was an increase from 644 to 826 in 1918 in New York, and the same rate of increase occurred in Chicago and Philadelphia.

There were 362 deaths from congenital disease in New York in 1917, against 515 in 1918; 175 in Chicago in 1917, against 225 in 1918, and 107 in Philadelphia in 1917, which total was more than doubled in 1918. It is impossible to tell at this time what proportion of those deaths are due to influenzal infection of the mother, or what proportion to lack of care in the first six weeks of life, so that altogether the increase amounts to about 7 per cent. of the reported deaths from influenza and influenzal pneumonia in the largest three cities of the country.

Another matter on which a good deal of comment has been made has been the remarkable age incidence of influenza. In the week of maximum mortality in Chicago, the deaths between the ages of 20 and 30 were more than fifteen times as many as in the corresponding week of 1917. In the period from 5 to 10 there were 5.8 times as many deaths as in the corresponding week of 1917. This method of record is different from the one usually employed in that it shows the actual increase in deaths at all ages from influenza. There has been a marked increase not only from 20 to 30, but also at definite ages below 20. It has sometimes been suggested that the reason for the high mortality of the disease in the 20 to 30 group has been that this group did not show the effect of immunity from the preceding epidemic of 1890, while in those ages over 30 the patients might have had the disease in 1890 and so were protected against the present infection. That cannot be a true explanation. There are a number of reasons for that, and one of them comes out here very plainly. In the 30 to 40 age group, the members of which might have had the infection in 1890-1893, the mortality is considerably higher than in the 10 to 20 groups, where no such immunity could possibly exist. That comes out more strongly in the six weeks' maximum mortality, in which in the 30 to 40 age group the excessive deaths were 6.5, while in the 10 to 20 group the mortality was only 4.8, showing a much higher mortality in those who might be supposed to have had influenza in 1890.

In general, about one third of the whole population of the country seems to have been attacked. This tallies very closely with what has been observed in other epidemics. About 2 per cent. of those attacked with influenza died. This would give about 30,000,000 cases of influenza with 600,000 deaths.

One other point may be of interest in respect to the occurrence of this disease in two of our groups designated by A and B. This refers to two divisions of the Students' Army Training Camp of the University of Chicago last fall, living under the same conditions, housed in fraternity houses, remodeled apartment places, etc. In Section B, ninety-two cases of influenza occurred in about six days. During the corresponding period only twenty-six cases occurred in Section A. The difference between the two groups is briefly this: Section B was composed of men who came to Chicago from various small towns in Illinois about the middle of October. Three of them were ill on their arrival in Chicago. Other cases developed very shortly, so that in six days there were ninety-two cases. Section B was not brought to the attention of the university authorities for four or five days, and the men who were ill were in contact with the others during this period. The difference between the conditions in Section B and in Section A was that in Section A from the onset the men were under the closest supervision, and those who were slightly ill were at once removed; the results were that all through the epidemic these were only slightly affected. The two groups were exactly similar as regards housing and as regards care, except that the men who were ill were allowed to remain in contact with the others in Section B, while in Section A those who were ill were at once isolated.

Influenza at Camp Taylor

Dr. W. W. Hamburger: The epidemic lasted from Sept. 22 to Oct. 25, 1918. From the latter date on, sporadic cases came in. Up to December 17 we had 12,742 cases with 822 deaths, a mortality of 6.45 per cent. During the period of the epidemic there were 72,000 troops in camp; the gross mortality, therefore, was 1.14 per cent.

We had at one time a 9,000 bed hospital. We had from 500 to 1,000 new cases every day. We had about 250 cases of pneumonia developing a day. Our highest death rate was 80 in twenty-four hours. We had from 150 to 200 medical officers and from 300 to 500 nurses. We had a pneumonia ward of 2,000 beds. We had a ward of from 3,000 to 4,000 beds for new cases of influenza, and a ward of from 1,500 to 2,000 beds for convalescent patients. These three hospitals were under the direction of the chief military head of the hospital. We had to plan twenty-four hours ahead so as to arrange for new beds.

The height of the epidemic was reached nine days after its beginning. Then there was a drop, a pseudocrisis, a secondary rise, and then a permanent drop. The pneumonia curve is interesting. In the early cases the patients died on an average in three days. Toward the height of the epidemic the duration of the pneumonia was increased from three to four days, showing a prolongation of the pneumonia period, as the result, perhaps, of the patients making a better attempt to fight the disease. The chronological chart of necropsies shows the change in the general pathologic picture from week to week. There was a change in the involvement of the liver, as shown in the increase of hemorrhagic hepatitis. There was a change in the suprarenals, first showing hemorrhage, and the second stage showing congestion. The proportion of lobular pneumonia, that is, the hemorrhagic type, was very great in the first week. This was followed later by an empyemic picture with less hemorrhage. Changes were found in the terminal ileum and transverse colon, an ileitis. These were found in the first week particularly in cases with blood in the stools. In the skin we found quite regularly a condition like the one found in the ileum, a vesicular eruption. Cultures showed staphylococcus. Three conclusions were arrived at from our study of this disease:

1. Influenza is a disease that involves the entire body, involving the head and head sinuses, brain and meninges rather regularly. It involves the entire pulmonary tract, as shown by the hemorrhagic bronchitis and pneumonia. It involves the abdomen, as shown by the cloudy swelling of the liver, kidney and spleen, and by the clinical picture of hemorrhage, and the condition of ileum and colon. It involves the skin, as shown by the vesicular eruption. The pneumonia that develops is the most important thing. From our observations influenza is a generalized process, particularly striking, with an involvement rather constantly of all the sinuses of the head.

2. Influenza, as we saw it, was a progressive disease. The picture of the first week was quite different from that of the second and third weeks. In the first week the tendency to hemorrhage was striking, there being hemorrhagic sputum and hemorrhage from the lungs and the bowels. As immunity was established, this hemorrhagic tendency became less. Our conclusion from this was that the very early infection was very violent and the efforts of the tissues to withstand the disease was evidenced by the hyperemia. In the first week the patients died within twenty-four hours, showing a generalized hyperemia. In the second and third weeks this condition changed to a consolidation in the lung.

3. The early cases showed rather strictly the influenza bacillus. In the second and third weeks the Pfeiffer bacillus in the sputum was taken over by the pneumococcus. Recent laboratory tests in the new cases disclose an increased number of influenza organisms in the sputum and postmortem cultures. The necropsies in five cases made early in the epidemic showed Pfeiffer's bacillus with no other organisms, while ten cases in the fourth week showed pure pneumococcus with no influenza bacilli. From this we concluded that if the influenza bacillus was found, it might be an indication of the disease, but nothing else.

Bacteriology of Influenza

Dr. D. J. Davis: A real contribution will be made to bacteriology if the present epidemic enables us to establish the relation of Pfeiffer's bacillus to influenza. In the epidemic of 1918 I examined sixty two cases, in which the influenza bacillus was present in 8 per cent. In the epidemic of so-called grip in 1905, I examined seventeen cases, in which the bacillus was present in 17 per cent. In another epidemic of so-called grip—I do not call these cases real influenza—in twenty-three cases the influenza bacillus was present in 18 per cent. In twenty-six cases of ordinary pneumonia examined in the 1908 series, the bacillus was positive in 38 per cent. In lobar pneumonia the bacillus was positive in 33 per cent. In sixty-eight cases of pertussis it was present in 89 per cent.; in measles in 56 per cent.; in varicella, in 64 per cent. It is an interesting fact that in chickenpox these organisms were often present, and certain investigators have found them in 100 per cent. In eleven cases of acute articular rheumatism, the bacillus did not occur. In pneumococcic meningitis, the bacillus was present in 11 per cent.; in 300 cases of tonsillar crypts, it was present in 1 per cent.; in normal throats, it was present in 10 per cent. I take these results as comparative. I am not prepared to say that I found the influenza bacillus present in all cases, but I think they are comparable because the same method was used in all these examinations.

The reports of the present epidemic gave a very considerable percentage of Pfeiffer's bacillus in lung punctures and postmortem material, the percentage of some observers reaching 70 or 80. Pfeiffer himself has not been able to find the bacillus with any degree of constancy in this epidemic. It is interesting to note that the Germans and Swiss lay more stress on the diplostreptococcus than on Pfeiffer's bacillus, while England laid more stress on Pfeiffer's bacillus. A few studies on the presence of specific antibodies in the blood have appeared.

I think we are justified in saying that the influenza bacillus is not the cause of the present epidemic for these reasons: [illegible] bacillus is not the cause because it is found in any [illegible] is found in diseases like rheumatism, pertussis or measles. 2. Animal inoculation has never produced it. 3. The influenza bacillus is a diplococcus. It causes leukocytosis, and the primary blood picture in influenza is leukopenia. 4. Influenza is a disease prone to secondary invasion. Prophylactic influenza inoculations have failed to furnish any protection against the disease. 5. There are as good reasons for saying that the influenza bacillus is the cause of pertussis or measles as for saying that it is the cause of influenza. 6. There are as good reasons for saying that the diplostreptococcus is the cause of influenza as for saying that Pfeiffer's bacillus is the cause.

As to other associated organisms in this disease, the diplostreptococcus and other streptococci are found. They are not so numerous in the sputum in the early days of the disease as in a normal throat. Under ten days my figures were 31 per cent, positive, and after ten days, 65 per cent. The so-called diplostreptococcus is perhaps the most direct cause of influenza pneumonia, and in the epidemic of 1889-1890 these were found repeatedly and were considered a cause by Ribbet and others. Mathers in this country very early discovered this organism and considered it as a cause. Nuzum and others have also found it. The general agreement seems to be that all the above-mentioned organisms are secondary invaders, and I think we are justified in this belief.

Experiments with a filtrable virus are not conclusive. Many more are necessary. It is difficult to explain the negative results with such material as unfiltered blood. They are not in harmony with our ideals of the disease.

The Pathologic Anatomy of Influenzal Bronchopneumonia

Dr. E. R. LeCount: Published in The Journal, this issue page 650.

Clinical Aspects of Influenza

Dr. Solomon Strouse: From a clinical point of view it makes no difference by what name a disease is called. To most clinicians this is essentially a new disease, and in order to explain it we have to be in a state of mind free from bias. I hesitate to paint the picture of a disease which in December was so different from that in September and October. It is necessary to paint it from each phase. The disease was most severe in late September and October. It gradually waned during November, and in December another wave appeared that was quite different from the first wave. In January we can see patches of color from both of the preceding waves.

The incubation period is twenty-four hours. The onset occurs with acute fever without a definite chill; there is cough, and there are symptoms of pharyngitis. The greatest extent is from two to twelve days or longer, depending almost entirely on the extent of the primary pulmonary involvement. Complications are few—empyema, lung abscess and otitis media. The sequelae are multiple. The febrile prostration is the most constant after-effect.

The December wave showed a slight involvement of the nasal membrane. In October the throat showed merely an irritation of the anterior pillar. Recently, in January, an intense redness was found in the throat. It will take many thousands of carefully examined cases to ascertain the percentage of lung involvements. That pneumonia, generally lobular, but sometimes lobar, is the most serious accompaniment of the disease is recognized by all clinicians. I myself do not consider pneumonia a complication. It seems to be one form of the infection. There was no common course. Today we might find small patches of râles. This might disappear, to be replaced by another, or it might turn into a frank lobar pneumonia or lung abscess. An acute hemorrhagic pneumonia with only a few râles was not unusual.

The general appearance of the patient and the degree of mental disturbance gave the only points of value in determining the severity. In the beginning, the disease was much more violent. The patient would be ill only twelve or twenty-four hours. All these patients died.

Cardiac dilatation, which has always been described as occurring in regular pneumonia, appeared in this disease rarely except at the end of a toxemia. Cyanosis was marked. In some instances the lips looked as though they were painted with blue paint. Some of the patients looked as though they were suffering from acidosis, though that was not found. In some instances, acute hemorrhagic edema appeared like the ghost of peace when everything seemed to be going nicely. It looked as if the only cause of death could be in the brain. As Dr. LeCount mentioned, everything known and unknown in pathology was found.

The changes in the patient from day to day made it very confusing. We learned early in the epidemic that fever after the third or fourth day usually meant pulmonary involvement, and yet in some cases repeated examination failed to reveal any signs. Sometimes it was due to hyperthyroidism of pulmonary tuberculosis.

In Chicago, otitis media occurred as a complication, but nothing like in the proportion of 1890. Perhaps the only good thing about the disease was the repair in the lung. In many of the severe cases with lung changes in which the patient finally became well, the lungs showed almost complete repair fuctionally.

Complicated by other disease, influenza seemed to be no more severe than uncomplicated. Every one knows that the combination of pregnancy and influenza caused the highest death rate, perhaps 60 per cent. Later the general fall in the mortality included this group.

From October 1 to January 31, we treated 655 cases of influenzal pneumonia at the hospital. The average death rate in the 655 cases was 6.1 per cent. Our nurses' and physicians' mortality shows most strikingly in the statistics the comparative contagiousness of the disease. The physicians and nurses in the influenza ward who contracted the disease and the number who died were out of all proportion to the rest of the hospital personnel.

As to treatment, practically every form of drug was used. We spent days and nights trying to find out what to use, and at the present moment I do not hesitate to say that with the exception of salicylic acid, possibly an opium alkaloid or even a saline expectorant, and digitalis when necessary, the patient is better off if given no medicine. The patient should be put to bed early and kept there. This applies not only to the patient who has pneumonia, but also to the patient who is only mildly ill, who has just a slight discharge from his nose. He should be put to bed and kept there until one is sure what is going to happen, because this patient may develop a serious pneumonia.

The after-effects have been many. In some cases extreme physical fatigue was due to weaknened heart muscles, though endocarditis was not a common complication. Psychosis was extremely rare—I saw only two cases. Loss of hair and mild menstrual disturbances have been exceedingly common. Persistence of cough and pain in the chest for weeks after the disappearance of the disease have been so common without pulmonary findings that not much attention is paid to them. Hyperthyroidism is beginning to show up—perhaps only in patients who had the disease before.

Influenza from the Standpoint of Public Health

Dr. Heman Spalding: To combat influenza in a large city where there are big industries and a large number of persons employed is an entirely different problem from that presented in the small cities. To stop all great industries, street cars and factories would throw out of employment thousands of persons, who would suffer from want of the necessities of life. Such a course would cause more deaths from sickness and hunger than would be saved by shutting down these activities.

Persons ill of the disease should be isolated. Children in contact with sick families should be excluded from school for eight or ten days. When an epidemic comes on in the form of an avalanche, quarantining in the usual way is practically impossible. Under such conditions the best we can do is to isolate the infected person. A mask properly worn and changed several times a day no doubt helps to protect against influenza; but as it is worn by most people and would be worn, it is worse than useless. I believe that the vaccine used in Chicago helped to keep the people from becoming panicky.

Discussion on Influenza

Dr. Robert B. Preble: It might be of interest to the members to hear something or other of the experiences which the

Army abroad had with the influenza epidemic. This epidemic began in the spring of 1918, was moderately severe, and then disappeared. Along about the middle of September we began to have cases of pneumonia, and we found the hemolytic streptococcus both in the sputum and at necropsy. In the course of a very short period we began to find influenza bacilli, and these increased without our being able to detect any difference in the clinical manifestations of the disease or in the pathologic findings. Then the influenza bacillus began to disappear, and the whole thing was over. We had far fewer cases than you had here, and the cases were obviously milder in type. For example, in a camp of 25,000 men we had only 500 cases of pneumonia, with a mortality which ranged as high as 33 per cent. As the streptococcus influenza went down and the pneumococcus became more common, the mortality fell to 10 per cent.

Another curious observation we made was that influenza developing among surgical patients was unaccompanied by mortality. None developed pneumonia. This was curious because most of these patients had septic wounds, and we had a great many septic compound fractures; yet none of these patients developed pneumonia, and we had no mortality.

Dr. Julius H. Hess: I want to report a very interesting little group of cases that we had at Fort Benjamin Harrison. In a measles and streptococci pneumonia epidemic previously many of us had the idea there that there was some association between the high mortality and the typhoid vaccination. In the second week of the epidemic at Benjamin Harrison thirteen fresh recruits from North Dakota came into camp. They had not had triple typhoid vaccination. In that number the mortality was exactly the same as in all the other cases at camp that had had the typhoid vaccination.

In the symptomatology there was one point that stood out so prominently that I think it ought to be included as a prominent early symptom: the gangrenous odor on the breath of these patients. When one went into a ward that was not ventilated properly, the odor was just the same as one gets on coming into contact with an abscess of the lung. This odor was found in the first forty-eight hours, so it could not be associated with later complications.

We found that more than 70 per cent. of our throat smears and sputums showed a large number of Vincent's organism, a fusiform bacillus and spirilla. Whether this was a coincidence or not we do not know. In one instance we got a pure culture of fusiform bacilli.

Dr. Peter Bassoe: If we were to read up the history of epidemics, we would find that in every epidemic of influenza there have been a large number of nervous complications. As far back as 1740 it was noted in an epidemic that there were many cases of nervous disease characterized by somnolence. In 1889 and 1890 there was an epidemic going over Europe without a marked mortality, but with a complication that was thought to be an encephalitis affecting the brain stem. This was known at that time as "nona," a name that has since been forgotten. In 1918 in England, in Austria and in France, there was described a condition called lethargic encephalitis, characterized by fever, headache, drowsiness, and more or less paralysis of the cranial nerves, particularly the ocular nerves. After a time it was thought to be a form of poliomyelitis, but it had none of the ordinary poliomyelitic symptoms. Finally, it was pointed out by a French surgeon that it was probably an influenza infection. The mortality was given as, I think, 25 per cent. in England and 35 per cent. in France. Now in the last few weeks there have been a number of such cases in Chicago. I myself saw six. Dr. Tieken saw six or seven. These cases have all been very much alike, characterized by very marked drowsiness, no cell increase in the spinal fluid, no headaches, and more or less cranial paralysis. I have seen some of the patients brought in with a facial paralysis and some with an ocular paralysis. I have a couple of cases under observation now. They show a very marked rigidity which is very similar to the rigidity we see in paralysis agitans. I think it is wise for us to be on the lookout when patients who have had influenza become very drowsy and then develop cranial nerve paralysis.

E. O. Jordan: I should like to say just a word about some observations on the bacteriology of these findings, as it has a bearing on what has been said in regard to the different types in different sections. In our group, Section B, where there were ninety-two cases, we very rarely found Pfeiffer's bacillus in any of the smears throughout this epidemic. They could be found in a few cases by searching very carefully. At the same time, in October, in the cases obtained from the hospital, Pfeiffer's bacillus was found in considerable numbers. In this case it would seem to be a group affair. As to death rates, Philadelphia and Baltimore seemed to have much higher death rate than other large cities. New York and Boston had lower rates. Some cities in this neighborhood, Milwaukee, St. Paul and Minneapolis, had lower death rates than Chicago.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, 1919, 17, No. 2.

Comparison of Carbon Dioxid Tension of Alveolar Air and Hydrogen-Ion Concentration of Urine with Bicarbonate of Blood Plasma. O. M. Schloss, New York, and H. Harrington, Baltimore.—p. 85.
*Fetal Bronchiectasis. H. L. Koeckert, Cleveland.—p. 95.
*Intestinal Contents of Newly Born Infants. A. Hymanson and M. Kahn, New York.—p. 112.
Sleep in Children and Its Disturbances. A. Strauch, Chicago.—p. 118.

Fetal Bronchiectasis.—Koeckert reviews the literature on this subject and reports one case, in many respects similar to the other cases of fetal bronchiectasis of the Sacklunge type, in which an analysis of the cyst fluid was made. It closely approximated liquor amnii.

Intestinal Contents of New-Born.—The meconium of five infants, voided during the first twenty-four hours of extra-uterine life, was analyzed by Hymanson and Kahn. The iron and calcium contents were similar to those obtained in hunger feces. The phosphorus of meconium was less. The sulphur was much increased. Traces of ammonia were found in the meconium. No uric acid was found. This fails to corroborate Weintraud's analyses. Amylase was present in extremely faint traces. Neither trypsin nor erepsin were found. No lactase nor lipase was found.

Archives of Ophthalmology, New York

January, 1919, 48, No. 1.

Basic Principles of Diagnosis in Motor Anomalies of Eye. A. Duane, New York.—p. 1.
Primary Intradural Tumor of Orbital Portion of Optic Nerve. M. Cohen, New York.—p. 19.
Experimental Studies in Intraocular Pressure and Tonometry. W. McLean, New York.—p. 23.
Two Rarely Described Instances of Scintillating Scotomata. J. A. Spalding, Portland, Me.—p. 38.
Surgery of Meibomian Cysts. J. Dunn, Richmond, Va.—p. 43.
Astigmatism Against Rule. J. Green, Jr., and W. F. Hardy, St. Louis.—p. 45.
Case of Acute Retrobulbar Neuritis in Child with Intestinal Stasis (Congenital Dilatation of Colon). M. J. Schoenberg, New York.—p. 56.
Extraction of Mature and Immature Cataractous Lenses Within Capsule. J. A. Kearney, New York.—p. 62.
Simple Electrical Device for Illuminating Field of Operation in Operations on Eye, Nose and Throat. J. A. Andrews, Santa Barbara, Cal.—p. 65.
Variation in Distribution of Nervous Abducens in Man. T. B. Magath, Chicago.—p. 67.
Eyesight of Negroes of Africa. J. N. Roy, Montreal, Canada.—p. 72.

Boston Medical and Surgical Journal

Feb. 13, 1919, No. 7.

Alveolitis Dentalis. Interstitial Gingivitis, So-Called Pyorrhea Alveolaris, Localized Catarrhal Stomatitis; Cause and Treatment. J. J. McNulty, New York.—p. 177.
Types of Tubo-Ovarian Suppuration. Cases. R. M. Green, Boston.—p. 179.
*Modification of Bradford Fracture Frame. A. S. Hyman, Boston.—p. 183.

Modification of Bradford Fracture Frame.—Hyman's modification of the Bradford frame consists of an upright frame attached to the bottom of the Bradford. To this upright connected a sliding bar which supports an adjustable pulley carriage. The sliding bar is fastened to the top and bottom of the upright with an adjustable brace. With the extension apparatus thus applied directly to the Bradford frame, it becomes possible to move the patient in bed from place to place without the slightest possible change in the position of the fragments of the fractured bone. It does away with the "hood" that is used to protect the feet of the patient from the weight of the bed clothes—the upright itself acts as a hood on which the sheets can be fastened. The apparatus can be used in the treatment of septic conditions of the leg or foot which require elevation and traction. Counter extension is easily obtained by placing suitable blocks under the bottom of the frame. Hyman believes that this apparatus will supplant Buck's extension apparatus.

Bulletin of Johns Hopkins Hospital, Baltimore

January, 1919, **30**, No. 335.

- *Epidemic Influenza. A. Bloomfield and G. A. Harrop, Jr., Baltimore.—p. 1.
- *Behavior of Blood Toward Oxygen in Influenzal Infections. G. A. Harrop, Jr., Baltimore.—p. 10.
- *Bacteriologic Findings in Epidemic Influenza. S. E. Howard, Baltimore.—p. 13.
- *Ectopic Pregnancy. H. M. N. Wynne, Baltimore.—p. 15.

Symptomatology of Epidemic Influenza.—Most of the patients on whom Bloomfield and Harrop report were seen from the very onset of symptoms and went through their illness without complications, thus affording an unusual opportunity to study the clinical features of the entire course of the disease. The mortality among these 268 cases was 4.8 per cent.; forty-one developed pneumonia, with a death rate of 32 per cent. The disease was ushered in by two groups of symptoms; in the first place the constitutional reactions of an acute febrile disease—headache, general aching, chills, fever, malaise, prostration, anorexia, nausea or vomiting; and in the second place, symptoms referable to an intense congestion of the mucous membranes of the nose, pharynx, larynx, trachea, the upper respiratory tract in general, and of the conjunctivae. Three distinct types of invasion were noted—abrupt invasion, gradual invasion and invasion with intermittent symptoms. Of particular interest were certain symptoms that were present within the two weeks preceding the onset, but which apparently were independent of the actual disease. In general, these "preonset" symptoms were in the nature of mild upper respiratory tract disturbances of from one to two weeks' duration, usually improving or well at the time of definite onset of the influenza.

The general appearance of the patients was most striking. In well marked cases, there was an intense, dusky, reddish-plum-colored erythema of the face, lips and upper chest, which usually faded off abruptly at the level of the breast, but in some cases extended over the entire chest and back, and occasionally involved the arms and legs. Early in the course of the epidemic the authors noticed an unusual bright red appearance of the throat in most of the patients, and more careful study of subsequent cases showed this to have striking and constant features. The changes in the mouth usually became full-blown during the first twenty-four hours of the disease. The most striking feature is a bright vermilion or scarlet injection of the pharynx, tonsils, pillars and soft palate. In many cases, this erythema extends over the entire mouth, and can be demonstrated by pressure on the mucosa of the cheek with a spatula. In the most marked cases, the entire mouth cavity has a flaming appearance. The tongue is usually coated, but if clean is bright red like the buccal mucosa. In from one half to two thirds of the cases at onset, one to three or four, or even more, dark crimson spots were seen on the mucosa of the inside of the cheek. The individual spots fade rapidly, disappearing without trace in from one to two days. They may reappear in repeated crops in the same individual, and are seen in convalescence in most of the cases. Another striking feature in the appearance of the mouth was a swelling of the minute nodules normally present on the soft palate. Once fully established, the disease picture was remarkably constant.

In the severer cases, a febrile albuminuria was present, usually clearing up promptly after free intake of water. The blood pressure was either normal or low. Low readings were especially frequent in the very asthenic cases. Leukopenia was the rule during the active stage of the disease. Apart from pneumonias, complications were few. The authors are convinced that epidemic influenza in 1918 is clinically identical with the disease as seen in previous pandemics, and that it is primarily a local disease of the respiratory tract. It presents a definite and characteristic clinical picture quite apart from pulmonary complications. The main features of the uncomplicated disease are a constant set of symptoms, characteristic erythema and appearance of the mouth, fever of determinate duration, and leukopenia. Proof is lacking that Pfeiffer's bacillus is the primary cause of uncomplicated influenza.

Behavior of Blood Toward Oxygen in Influenzal Infections.—The determinations included in Harrop's report were made in nine cases of postinfluenzal bronchopneumonia, three of them fatal, and in four uncomplicated cases of influenza, in the early hyperacute stage, when the characteristic dusky erythema or "cyanosis," was most striking. The oxygen content of the venous blood was determined by Lundsgaard's method. Both oxygen content and oxygen unsaturation showed normal values in uncomplicated influenza cases. In none of the cases of bronchopneumonia which recovered, and not until the terminal collapse in the fatal cases, has the venous oxygen content or the amount of oxygen unsaturation been abnormal. The values seems independent of temperature, pulse, respiration and extent of lung involvement. In two fatal cases with septicemia, after terminal collapse, there was a progressive fall in both the oxygen-combining power and the oxygen content of the venous blood, in general parallel. There was no increase at any stage of the disease in the values for the oxygen unsaturation of the blood.

Bacteriologic Findings in Epidemic Influenza.—The cultures reported on by Howard were taken from the cases reported in the paper by Bloomfield and Harrop. Cultures were made from the nasopharynx, the sputum and the blood. Among the organisms found were *B. influenzae*, green streptococci, pneumococci and staphylococci. The authors feel that none of the organisms isolated may be regarded as the cause of epidemic influenza. They are convinced that the *B. influenzae* of Pfeiffer is merely a secondary invader, though in some localities it may be a frequent cause of terminal bronchopneumonia. The other organisms isolated may also be regarded either as normal inhabitants of the mouth or as secondary invaders. The primary cause of epidemic influenza, therefore, is still unknown.

Ectopic Pregnancy.—Three hundred and three cases of ectopic pregnancy were analyzed by Wynne. This is an incidence of 1.3 per cent. of 22,688 gynecologic patients. Of 275 patients whose history as to previous pregnancy is recorded, fifty-seven had never before been pregnant. Forty-five patients had had operations prior to admission for ectopic pregnancy. The most common causes for which these patients sought medical attention were pain, complained of by 254; bleeding, complained of by ninety-three, and tumor, complained of by twenty-two patients. A history of abdominal pain was procured from 300 patients; the other three patients stated positively that there had been no abdominal pain nor discomfort, and they came to the clinic on account of irregular bleeding. In each of these three patients an unruptured tubal pregnancy was found at operation, but no evidence of any clot or free blood in the peritoneal cavity. Recurring attacks of pain occurred in 102 cases; seventeen patients complained especially of soreness and tenderness, rather than of definite pains. The character of the pain was described as violent, agonizing or severe in ninety cases, cramping in forty-one, colicky in four, bearing down in fourteen, labor-like in nine, shooting, cutting or sticking in 6, and as dull or aching in twenty-nine. One hundred and three patients stated definitely that they had missed one or more periods; and thirty-one said that their last period had been overdue for from one to five weeks, while fifty-two had noticed that the last period was abnormal in some other respect. The author emphasizes the fact that diagnosis of the cases is not so easy as many writers consider it.

The treatment of these cases (272) was operative, either by the abdominal or vaginal routes. In several cases posterior vaginal celiotomy was performed for diagnosis. Pelvic puncture was employed for pelvic hematocele in a number of cases, although in 60 per cent. of the cases a laparotomy was performed immediately afterward. In only fifty-five cases had rupture not occurred; 266 cases were tubal pregnancies; two were interstitial and 2 two were ovarian; 131 were on the left side, the remainder on the right. There were thirteen deaths in the series of 303 cases. Of 120 patients, 100 have been well since operation. Of 127 patients, there was no possibility of future pregnancy in thirty-three. Of the remaining ninety-six, in whom there was a possibility of future pregnancy, thirty-six have since become pregnant one or more times, and six patients had a second extra-uterine pregnancy.

California State Journal of Medicine, San Francisco

February, 1919, **17**, No. 2.

Post-Influenzal Empyema and Lung Abscess. C. W. Lippman, San Francisco.—p. 41.
Child Hygiene Bureau. A. Brown, San Francisco.—p. 42.
Pathology and Treatment of Influenzal Pneumonia. A. C. Reed, San Francisco, and H. Snure, Los Angeles.—p. 43.
Rattlesnakes, Their Venom and Antidotes. S. Pope, San Francisco. —p. 49.
Tuberculosis of Uterus. J. R. Scott, Los Angeles.—p. 52.
Diagnosis and Treatment of Glandular Obstruction at Neck of Bladder. L. C. Jacobs, San Francisco.—p. 56.
Recurrence of Stone in Kidney after Operation. W. P. Willard, San Francisco.—p. 58.

Illinois Medical Journal, Chicago

January, 1919, **35**, No. 1.

Health Insurance. C. J. Whalen, Chicago.—p. 1.
Compulsory Health Insurance. E. H. Ochsner, Chicago.—p. 3.
Compulsory Health Insurance. J. R. Ballinger, Chicago.—p. 9.
National Health Insurance. M. L. Harris, Chicago.—p. 10.
Compulsory Insurance. J. Fairhall, Danville, Ill.—p. 12.
Quackery Report of Committee Appointed by Douglas Park Branch of Chicago Medical Society. H. R. Krasnow, Chicago.—p. 16.

Journal of Cutaneous Diseases, Chicago

February, 1919, **37**, No. 2.

Tuberculosis of Skin. S. Pollitzer, New York.—p. 81.
Dermatoses Possibly Related to Tuberculosis. M. Scheer, New York, and J. E. Lane, New Haven, Conn.—p. 84.
Cases of Multiple Disseminated Lupus Vulgaris. H. Hazen, Washington.—p. 89.
Sarcoid of Boeck and Erythema Induratum of Bazin: Case. S. E. Sweitzer and H. E. Michelson, Minneapolis.—p. 98.
Military Tuberculosis of Skin, Lichen Scrofulosorum and Papulo-Tuberculosis. F. Wise, New York.—p. 105.

Journal of Infectious Diseases, Chicago

February, 1919, **24**, No. 2.

*Chemical Changes in Tuberculosis Tissues. G. T. Caldwell, Chicago. —p. 81.
*Study of Gram-Negative Bacilli of Renal Infections. R. H. Herrold and H. Culver, Chicago.—p. 114.
*Study of Complements Used in Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 121.
*Pleomorphic Streptococci; Biologic Reactions. N. P. Sherwood and C. M. Downs, Lawrence, Kan.—p. 133.
*Variation in Diphtheria Group. F. D. Meader, Providence, R. I.—p. 145.
Bacteriologic Study of Sardines. M. M. Obst, Washington.—p. 158.
*Effect of Concentrated Solutions of Certain Magnesium Salts on Pyogenic and other Bacteria. Z. Northrup, East Lansing, Mich.—p. 170.
*Demonstration of Immune Opsonins for the Pleomorphic Streptococcus in Experimental Poliomyelitis in Monkeys. W. M. Davis, Rochester, Minn.—p. 176.
*Bacteria in Sputum in Measles. R. Tunnicliff, Chicago.—p. 181.

Chemical Changes in Tuberculous Tissues.—For the sake of comparative results, Caldwell made analyses of normal as well as tuberculous tissues. Lymph glands and liver tubercles were used exclusively for the tuberculous specimens, and normal glands and livers furnished the materials for comparison. Many of the findings of other workers in this field, notably Wells, are confirmed. For details, the original article should be consulted.

Gram-Negative Bacilli in Renal Infections.—A classification of eighty-six different strains of colon bacillus-like organisms by means of cultural, fermentative and serologic methods is made by Herrold and Culver. These organisms were all secured by ureteral catheter from the kidneys and isolated by cultivation on blood-agar plates.

Complements in Wassermann Reaction.—Ruediger found that the complements of fresh guinea-pig serum varied greatly in fixability. Human complement gave much weaker positive results than did guinea-pig complement. Guinea-pig complement left on the clot and kept in the refrigerator remained fairly constant for three days, while complements which had been removed from the clots deteriorated more rapidly. Ramy's method of preserving complement by sodium acetate was a total failure in Ruediger's hands. Glycerol seemed to prevent deterioration of complement for a few days.

Pleomorphic Streptococci.—Pleomorphic streptococci which, according to Holman, would be classed as *S. salivarius* were found by Sherwood and Downs in the nasopharynx of approximately 25 per cent. of apparently normal persons. These organisms, as a rule, showed some pathogenicity for young rabbits, which develop agglutinins for the strains of organisms injected. Injected intracerebrally, the cocci remained localized in the nervous system throughout which they became disseminated. When injected intravenously they were found in the nervous system within three or four hours. After seventy-two hours they were present usually only in the nervous system. The common symptoms were rise in temperature and loss of muscle tone, with occasional flaccid paralysis and permanent impairment of the legs. The changes in the nervous system were hyperemia, frequently hemorrhage, increase in round and neuroglia cells and perivascular infiltration of round cells. The serum of normal persons frequently contains agglutinins for these organisms, occasionally in dilutions of 1:100.

Variation in Diphtheria Group.—Twenty-five cultures of members of the diphtheria group isolated from various sources were studied by Meader, and he found that variations in morphology, in fermentative reactions and in virulence occur in subcultures derived from one parent strain. The virulence of a strain is not closely correlated with its morphology, nor is it correlated with its fermentative reactions.

Effect of Magnesium Salts on Certain Bacteria.—The fact that Epsom salt has a salutary effect on the skin led Northrup to investigate the influence of magnesium sulphate on the organism commonly found in ordinary pimples, *Staphylococcus aureus*. It was negative. Streptococcus skin infections may, however, be inhibited if any concentration of magnesium sulphate is used externally. Magnesium chlorid had the most marked inhibitory action on the growth of all organisms used in the experiment.

Opsonins in Experimental Poliomyelitis.—A well marked increase in opsonin for the pleomorphic streptococcus in the serum of monkeys during attacks of poliomyelitis following the inoculation of virus was noted by Davis. Since this increase in opsonin occurs toward strains derived from human cases as well as from experimental poliomyelitis following the injection of virus, Davis says that the pleomorphic streptococcus in this disease cannot be regarded as an accidental invader of the nervous system.

Bacteria in Sputum in Measles.—Seventeen specimens of measles sputum were examined by Tunnicliff on the first or second day after the appearance of the eruption. Direct smears of the washed sputum showed the presence of a variable number of small (0.5 microns) round or very slightly elongated gram-positive diplococci, often in large numbers and frequently the only organisms present. The diplococcus was isolated from all of the sputum examined. *B. influenzae* and *S. hemolyticus* were each isolated twice.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1918, **12**, No. 5.

*Pharmacology of Ureter; Action of Some Optic Isomers. D. Macht, Baltimore.—p. 254.
*Dichlorethylsulphid (Mustard Gas); 1. Systemic Effects an Mechanism [illegible] E. K. Marshall, Jr., V. Lynch and F. W. Smith, W[illegible] p. 265.

*Id. 2. Variations in Susceptibility of Skin to Dichlorethylsulphid. E. K. Marshall, Jr., V. Lynch and H. W. Smith; Washington.—p. 291.

Pharmacology of Ureter.—The action of optic isomers on the isolated ureter were studied by Macht. He found that in case of the different optic varieties of hyoscyamin, scopolamin, epinephrin and camphor, the pharmacologic action was different, and that the levogyrous variety in each case was the more stimulating than the dextrogyrous one.

Systemic Effects of Dichlorethylsulphid.—Dogs and fish were used by Lynch and his associates in this study. It was found that dichlorethylsulphid is absorbed through the lungs and produces definite, characteristic, systemic effects. The symptoms of injection of the substance are salivation, vomiting and diarrhea, tonic and clonic convulsions, slow and irregular heart, followed by a rapid pulse, and stimulation of the respiration. A dose of 6 mg. or less per kilogram, injected intravenously in aqueous solution, proves fatal for dogs. Dichlorethylsulphid appears to be excreted in the urine, in part, at least, as dihydroxyethylsulphid, which has been shown to be a comparatively nontoxic body. The lesions in the intestine suggest that excretion of the substance may also take place here. The authors advance as a theory of action that the dichlorethylsulphid penetrates the cells, and in the aqueous phase of the cell, hydrolyzes to hydrochloric acid which is responsible for the damage. Sodium bicarbonate in large doses somewhat alleviates the symptoms, but does not prevent death. Fish are much less susceptible to this substance when kept at a low temperature after exposure rather than at room temperature. The hydrolysis of the substance is much slower at a low temperature. Monochlorethylsulphid, and dichlorpropylsulphid are lipoid soluble and easily hydrolyzed. They both act similarly to mustard gas. The authors believe that dimethylsulphate acts by intracellar liberation of sulphuric acid.

Action on Skin of Dichlorethylsulphid.—Two methods were used by the authors for determining the cutaneous sensitivity of individuals to dichlorethylsulphid. The first consisted in exposing the skin to the vapors of the substance under constant conditions and determining the minimum time of exposure which is necessary to produce a visible reaction within twenty-four hours. The second method consisted in applying to the skin standard solutions of mustard gas in paraffin oil. The first method gave the most accurate results, although the second is very much simpler and more rapid in its application. Tremendous differences in sensitivity were found on the part of different individuals. A large group of white men tested showed about 2 to 3 per cent. of hypersensitive men and 20 to 40 per cent. of resistant men. Negroes, as a race, are much more resistant than white men. Sweating and moisture increase the sensitivity of the skin. Men may become more sensitive from continued exposure to the gas, and especially when severely burned. An atypical reaction is described in a man who became more sensitive from continued working with the substance; this appears to be of anaphylactic nature. The skins of ordinary laboratory animals were also tested. The monkey and guinea-pig were the most resistant, while the horse was the most sensitive. No animal exhibited a reaction at all similar to that in man. No animal has yet been found which will give a blister from the application of mustard gas.

The only factor in the general characteristics of the skin which would appear to have a distinct bearing on the question of sensitivity is the apparent thickness of the skin. Fifteen minutes after pure dichlorethylsulphid is applied to the skin it can be removed almost entirely by long continued rubbing with kerosene. This indicates that the substance is not immediately absorbed into the deeper layers of the skin. A resistant individual whose normal minimum burning time is four to five minutes and who does not react to the 1 per cent. oil solution, can be made to give a reaction to a fifteen to thirty second exposure of a 0.01 per cent. oil solution by covering the area of application with a glass cup immediately after, and leaving it covered for six to eight hours. It was found that when two vapor tests were made under identical conditions on the arm of a sensitive individual (five minutes exposure), and immediately after the exposure the arms of two individuals were impressed on each of the exposed areas for five minutes the burns were modified in intensity. If the recipients are respectively more and less resistant than the donor, that burn on the donor's arm given to the more resistant man will be the mildest. If a sensitive individual impresses his arm alternately against burns of the same concentration and exposure on a resistant and sensitive man, the recipient receives a more severe burn from the sensitive than from the resistant man.

This would indicate that the skin of a resistant individual displays a greater affinity or capacity for dichlorethylsulphid than that of a sensitive man. A tentative explanation of this phenomenon is offered. A three phase system is involved—the air over the skin surface constitutes the outer phase; some fatty or keratinous elements of the skin, the central phase; and a cellular portion of the skin the inner phase. The central phase is rich in lipoids and poor in water, while the inner phase is rich in water and poor in lipoids. After exposure to the vapors of dichlorethylsulphid the central phase is the absorbing agent and tends to establish equilibrium with the other two phases. On account of the lipoid nature of the central phase no damage is produced here because the compound is not hydrolyzed. On its passage from the central to the inner phase hydrolysis takes place within the cell and damage results when a sufficient concentration of hydrochlorid acid is attained. The outer phase is constantly being freed from vapor by diffusion and convection currents, so more and more can evaporate from the central phase. The susceptibility of an individual depends on the relative power of the central phase to hold the poison in an inactive form (not hydrolyzed) and prevent its entry into the inner phase at a sufficient velocity to result in the formation of a toxic concentration.

Kentucky Medical Journal, Bowling Green

February, 1919, **17**, No. 2.

*Focal Infection from Dental Standpoint. R. Grant, Louisville, Ky.—p. 57.
Smallpox in Country Districts. G. B. O'Roark, Grayson, Ky.—p. 60.
The Methods of Vaccination. R. B. Norment, Louisville.—p. 61.
Incoming Draft. V. E. Miltenberger, Camp Taylor, Ky.—p. 64.
Communicable Diseases at Camp Zachary Taylor. W. W. Hamburger, Chicago.—p. 67.
Neuro-Psychiatry. M. Board, Louisville.—p. 69.
Influenza Epidemic. W. F. Boggess, Louisville.—p. 72.
Volunteer Medical Service Corps. E. P. Davis, Philadelphia.—p. 79.
Medical Man and War. J. D. Liles, Vanceburg.—p. 85.
Pellagra, Older and Newer Ideas as to Cause and Cure. C. B. Van Arsdall, Harrodsburg, Ky.—p. 87.
Broncho-Pneumonia. U. V. Williams, Frankfort, Ky.—p. 91.

Focal Infection.—Abstracted in The Journal, Oct. 5, 1918, p. 1165.

Medical Record, New York

Feb. 15, **95**, No. 7.

Syphilis and Parasyphilis of the Central Nervous System. M. Neustraedter, New York.—p. 265.
*Major H. R. Allen's Instantaneous Method of Reshaping Tool Handles So That They May Be Used by Deformed or Crippled Hands. R. W. Shufeldt, Washington.—p. 269.
*Control of Hemorrhage from Large Sinuses of Brain by Invulsion of Outer Wall into Lumen. W. P. Eagleton, Newark, N. J.—p. 274.
*False Teeth as Cause of Cancer. C. E. Field, New York.—p. 275.
Sleep as Mentioned by Rabelais. D. W. Montgomery.—p. 277.
Distressing General Conditions Traceable to Eye Conditions. J. A. Kearney, New York.

Reshaping Tool Handles for Use by Deformed Hands.—Using the composition prepared by Major Allen, and carrying out his idea in another direction, Shufeldt makes a rough model of a hand with ordinary gelatin and dental modeling compound, and when it is in plastic condition it may be made to hold any tool or instrument that the cripple (*mutilé*) desires to use at the time. This mold or composition hand may be detached and another screwed on in a moment, to meet what the man desires to perform. Then, too, it is an easy matter, and one that requires but a few minutes, to plunge this "hand" into hot water, remove the fork, insert a lead pencil or a pen, or anything else, for the matter of that, which the cripple desires to use next, dip the composition in ice water, and in a very brief space of time the member is ready for use as desired. An ingenious person may work in all sorts of useful designs—as a single finger that may be used on a typewriter—and for a great many other purposes. In other words, an artificial arm, with a detachable hand may, by this plastic hand attached, be made to be ten times more serviceable than the artificial hands as they are now usually manufactured.

Control of Hemorrhage from Large Sinuses of Brain.—Eagleton describes a special apparatus, combining an obturator and ligating principle, which he uses in these cases. He reports a successful operation for cerebellar abscess by obliteration of the lateral sinus and exploration and drainage through its inner wall and anterior surface of cerebellum.

False Teeth as Cause of Cancer.—The basis of Field's report is an analysis of a series of 87 clinical cases coming under his observation in which the initial ulceration or nodule was in close proximity to an artificial denture of which the patient offered complaint. Nineteen showed original development of the tumor adjacent to bridge work and 68 near plate work of various types. The malignancy presented in 59 cases in the superior maxilla as against 28 affecting the inferior maxillary region. The tumors were classified as follows: carcinoma, 65; sarcoma, 9; osteoma, 3; fibroma, 4; chondroma, 4, and melanosarcoma, 2.

Michigan State Medical Society Journal, Grand Rapids

February, 1919, **18**, No. 2.

*Influenza and Influenza Pneumonia. D. M. Cowie and P. W. Beaven, Ann Arbor.—p. 41.
Influenza and Pneumonia with Their Complications. L. S. Beals, Camp Custer.—p. 47.
Thrombosis of Coronary Arteries. J. B. Herrick, Chicago.—p. 49.
A Plea for the Infant. G. McDonald, Detroit.—p. 51.
Some Economic Problems in Feeding Infants and Children. B. R. Hoobler, Detroit.—p. 52.
Case of Acute Mastoiditis, Sinus Thrombosis and Bacteriemia with Recovery. J. S. Wendel, Detroit.—p. 54.
Case of Congenital Ptosis of Eyelids. H. L. Begle, Detroit.—p. 55.
Gangrene of Foot Following Influenza. J. H. Andries, Detroit.—p. 56.
Case of Pernicious Anemia. W. J. Wilson, Jr., Detroit.—p. 57.
Case of Cerebro-Spinal Syphilis. F. R. Starkey, Detroit.—p. 58.

Influenza and Pneumonia.—One hundred and thirty-one cases were carefully analyzed by Cowie and Bevan. It was noted that the respiratory rate is no guide to the *seriousness* of influenza pneumonia. The myocardium seems to be unaffected throughout the course of the influenza and the pneumonia. This observation was borne out by the necropsies made. A low leukocyte count is characteristic of influenza and influenza pneumonia. A leukopenia frequently occurs, but it is not the rule. Albumin and casts were not found in the straight influenza cases. They were present in 70 per cent. of the pneumonia cases. The authors regard their presence as indicative of pneumonia and of grave significance. Cyanosis was a nearly and almost constant sign of the pneumonias. In every case observed, pneumonia was demonstrated. In 67 per cent. of the influenza pneumonias the process started in the left base posteriorly. Bloody sputum was not always a grave symptom of pneumonia. Cases with pulmonary hemorrhages ended fatally. The authors believe that all deaths from influenza are due to bronchopneumonia.

Military Surgeon, Washington, D. C.

February, 1919, **44**, No. 2.

Preparation of Medical Officers of Combat Divisions in France at Theatre of Operations. B. K. Ashford, M. C., U. S. Army.—p. 111.
Epidemiology of Sputum Borne Diseases and Relation to Health of National Forces. E. B. Vedder, M. C., U. S. Army.—p. 123.
Sanitation in Camps and Hospitals on British Front in France (Concluded). F. L. Pleadwell, M. C., U. S. Navy.—p. 154.
Naval Transportation of Army Sick and Wounded Overseas. J. A. Murphy, M. C., U. S. Navy.—p. 178.
Medical Department of Cuban Army and Navy; Its Reorganization. V. Havard, Cuba.—p. 186.

Minnesota Medicine, St. Paul

February, 1919, **2**, No. 2.

Medical Service with British Expeditionary Forces in France. E. T. F. Richards, St. Paul.—p. 41.
Neuro-Circulatory Asthenia (Irritable Heart); Study of 35,000 Draft Recruits. E. L. Touhy, Duluth, Minn.—p. 47.
Prostatic Calculi. E. S. Judd and J. L. Crenshaw, Rochester, Minn. —p. 52.
Slight Symptoms in Gall-Bladder Disease with Marked Gross Pathologic Lesions. J. S. Holbrook, Mankato, Minn.—p. 57.
Surgical Importance of Abdominal Adhesions. W. R. Bagley, Duluth, Minn.—p. 58.
*Relation Between Tonsillar Infection and Recurrent Vomiting. R. Taylor, Winona, Minn.—p. 61.

Tonsillar Infection and Recurrent Vomiting.—Among forty-seven cases of recurrent vomiting, Taylor found that in forty there was evidence of tonsillar or adenoid disease. In six of the twenty-four patients whose tonsils and adenoids were removed, no further information could be secured. One of the remaining patients is unimproved. Five are very much improved, and twelve have had no attacks since operation, this period varying from seven months to six years.

Modern Hospital, Chicago

February, 1919, **12**, No. 2.

Hospital Construction at U. S. Naval Hospital, New York. G. A. Lung, U. S. N.—p. 81.
Mending Before Condemnation and Replenishing of Supplies. L. S. Fish, Chicago.—p. 84.
Service Building of Rhode Island Hospital. W. C. Hill, Boston.—p. 85.
Educational Value of Hospital Reports. C. E. McCombs, New York. —p. 90.
Telephone Operator's Information Card. P. O. Clark, Wheeling, W. Va.—p. 94.
Venereal Disease Control. C. C. Pierce, U. S. P. H. S.—p. 95.
Standards for Tuberculosis Sanatoriums. R. Bosworth, St. Paul.—p. 97.
Problem of Hospital Intern. H. W. Hersey, Boston.—p. 107.
Hospital Accounting. C. A. Porter and H. K. Carter, Chicago.—p. 111.
Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 114.
State Tuberculosis Sanatoriums in Illinois. G. T. Palmer, Springfield, Ill.—p. 128.
Public Health and Venereal Disease. A. Thompson, Washington, D. C.—p. 129.
Assistance of Publicity to Hospitals. R. S. Somerville, Vancouver, B. C.—p. 136.
A Square Deal for Pupil Nurse. C. E. Gray, Blackwell's Island, N. Y.—p. 141.
Keeping Up the Fight. C. C. Pierce, U. S. P. H. S.—p. 143.
Conservation in Planning of Diets. E. V. McCollum, Baltimore.—p. 147.

New Jersey Medical Society Journal, Orange

February, 1919, **16**, No. 2.

Laboratory Findings; Their Proper Interpretation. O. Lowy, Newark, N. J.—p. 37. (To be continued.)
Mastoid Difficulties. D. M. Yazujian, Trenton, N. J.—p. 41.

New York Medical Journal

Feb. 15, 1919, **109**, No. 7

*Etiology of Chorea. S. Graves and B. H. Paige, Louisville, Ky. —p. 265.
Medical and Surgical History of American Participation in European War. Loy McAfee, Washington, D. C.—p. 268.
*Bacteriologic Examination of Sputum in Influenza. H. U. Williams, Buffalo.—p. 273.
Venereal Diseases in Army. I. W. Brewer, Camp Humphreys, Va. —p. 273.
Iron and Arsenic Intravenously in Treatment of Anemia in Chronic Ailments. A. C. Geyser, New York.—p. 274.
Tonic Spasms: Significance as Clinical Phenomenon. J. M. Taylor, Philadelphia.—p. 276.
Influenza and Epidemic Pneumonia. H. I. Goldstein, Camden, N. J. —p. 278.
Treatment of Lung Injuries. C. G. Cumston, Geneva, Switzerland. —p. 286.
Prophylaxis and Treatment of Influenza. L. T. de M. Sajous, Philadelphia (continued).—p. 288.

Etiology of Chorea.—The case cited by Graves and Paige is unusual because of its rather acute onset, apparently simultaneously with "rheumatism," its associated endocarditis and its postmortem pathology. The patient was ill only about three weeks. The final gross and microscopic diagnoses were: lobular pneumonia, vegetative endocarditis, acute toxic splenitis, toxic enteritis and appendicitis, toxic hepatitis and midzonal necrosis; toxic nephritis (early tubular), polypoid adenomata of cecum. The bacteriology showed pneumococcus from the lungs and heart's blood (septicemia five hours postmortem) and *Staphylococcus aureus* with pneumococcus from the right middle ear. This case offers several interesting features. Apparently a typical acute chorea made its appearance synchronously with acute infection. The spinal fluid was negative. Histologically the brain was negative. The authors suggest that the blood and spinal fluid be examined repeatedly, bacteriologically and serologically, in every case of chorea. It is possible that acute or Sydenham's chorea is due to the action of bacterial toxins, perhaps a selective action on central nerve cells, in persons whose inherited nervous instability makes them more readily subject to such toxic action.

Bacteriologic Examination of Sputum in Influenza.—The sputum of 53 influenza patients was examined bacteriologically by Williams. He found the following: pneumococci (probable) in 33 cases; streptococci (probable) in 17 cases; staphylococci and tetrads, in 24 cases; gram-negative cocci in 42 cases; Pfeiffer bacilli in 16 cases; other bacilli in 30 cases; hemolysis present in 23 cases. The sputum always contained two organisms in considerable numbers, and frequently three or more. The sputum did not contain Pfeiffer's bacillus in overwhelming numbers.

Ohio State Medical Journal, Columbus

Feb. 1, 1919, **15.** No. 2.

Local Treatment of Acute Rhinitis. J. A. Thompson, Cincinnati.—p. 63.
Scarlet Fever: Diagnosis and Treatment. A. J. Bell, Cincinnati.—p. 64.
How Physicians of Ohio May Aid in Campaign Against Venereal Diseases. H. N. Cole, U. S. P. H. S.—p. 68.

Surgery, Gynecology and Obstetrics, Chicago

February, 1919, **28.** No. 2.

*Clinical Significance of Congenital Anomalies of Kidney and Ureter. H. G. Bugbee and J. R. Losee, New York.—p. 97.
*Tubal and Ovarian Hemorrhage. J. W. Bovée, Washington.—p. 117.
*Chorio-Epithelioma. End Results of Operative Treatment in Nine Cases. H. N. Vineberg, New York.—p. 123.
*Vaginal Hysterectomy Technic for Cure of Prolapse of Uterus When Removal of Uterus Is Necessitated. D. Bissell, New York.—p. 138.
*Effect of Hysterectomy on Ovarian Function. E. H. Richardson, Baltimore.—p. 146.
*Pathology of Goiter. B. T. Simpson, Buffalo, N. Y.—p. 153.
Hypertrophic Stenosis of Pylorus in Infants; Six Cases. T. M. Green and J. B. Sidbury, Wilmington, N. C.—p. 159.
*Etiology of Toxemia of Pregnancy With or Without Convulsions. J. E. Talbot, Worcester, Mass.—p. 165.
*Diagnosis and Treatment of Chronic Duodenal Obstruction. E. L. Kellogg, New York.—p. 174.
Infection of Fused Kidney with Duplication of Left Renal Pelvis. L. Buerger, New York.—p. 183.
*Extreme Pendulous Abdomen and Surgical Treatment by New Three-Flap Operation. N. J. MacLean, Winnipeg, Canada.—p. 190.

Congenital Anomalies of Kidney and Ureter.—The twenty-three clinical cases of anomalies of the kidney and ureter cited by Bugbee and Losee represent two single kidneys, both the seat of infection, one presenting a calculus obstruction of the single ureter; three fused kidneys; one horseshoe kidney, the seat of tuberculosis, and two fused kidneys apparently free from infection but causing pressure in their anomalous position. All six cases showing duplication of the renal pelvis had a pyelonephritis. The six cases presenting one or both kidneys in an anomalous position showed renal infection, one being tuberculosis, and another having a renal calculus. The six cases showing anomalies of one or both ureters all were the seat of real infection. It must be noted that but two of the cases presented renal infection which indicates that a single kidney called on to do double work, a malformed or malplaced kidney having poor drainage, poor blood supply and subject to pressure is prone to infection. Anomalies of the ureter also interfere with kidney drainage, thus predisposing to infection.

The necessity for assisting such kidneys to perform their function is apparent. The indications are to throw less work on the kidneys. With four exceptions the infections were all of the colon type. The necessity of attention to the intestinal tract is apparent. Lavage of the kidney pelvis has been beneficial, and permanent drainage with the ureteral catheter, often for several days, has proved efficacious. The surgical indications are to improve the drainage and relieve pressure, if necessary, by placing the kidneys in more nearly their normal position; to remove any obstruction to renal drainage (as a calculus) to remove a diseased kidney when destroyed beyond repair, if the opposite kidney is able to carry on the necessary function, or in rare cases to remove the kidney which cannot be replaced and is causing pressure symptoms due to its malposition. Whenever an abdominal mass is found, a renal anomaly must be excluded. If it is not possible to make a positive diagnosis of the extent of the lesion before operation, the operation should include an exploration of both kidneys.

Tubal and Ovarian Hemorrhage.—Abstracted in The Journal, June 22, 1918, p. 1975.

Operative Treatment of Chorio-Epithelioma.—The fact that he obtained eight recoveries in nine cases is attributed by Vineberg to the circumstance that the diagnosis was made at an early stage of the disease. The only fatality in the series occurred in the case of a patient who was subjected to two curettages, the pathological report of the first being misleading, although a tentative diagnosis, on the clinical evidence, had already been made by Vineberg. The author agrees with Pollosson and Violet, that the better results obtained in cases following hydatid mole are probably due to the circumstance that the cases are watched more closely, and the diagnosis, in consequence, is made at an earlier stage.

The treatment of chorio-epithelioma, once the diagnosis has been made, resolves itself into an immediate panhysterectomy, for there is no way of determining whether the individual case be a highly malignant one, or one that might undergo spontaneous cure. The latter contingency is so unusual that for all practical purposes it must be left out of consideration. When the growth is discovered while emptying the uterus of a hydatid molar pregnancy, the natural thing to do would be to complete the operation through the vaginal route. The same would apply when, in a doubtful case, an exploration of the inner and outer walls of the uterus would be made through a vaginal incision. In most all other instances, the abdominal route probably is to be preferred, for it embraces less traumatism and consequently less danger of causing metastases.

Vaginal Hysterectomy for Cure of Prolapse of Uterus.—Vaginal hysterectomy for the cure of prolapse of the uterus where the removal of the uterus is necessitated and fascial lapping is advocated by Bissell in all forms of vaginal prolapse. He describes his technic in detail.

Hysterectomy and Ovarian Function.—An abstract of this article was published in The Journal, June 15, 1918, p. 1885.

Pathology of Goiter.—Enlarged thyroids are classified by Simpson in five groups, namely: simple goiter, multiple adenomata, colloid goiter, exophthalmic goiter, malignant neoplasms. These are all characterized by the common factor of enlargement of the thyroid but otherwise differ markedly from one another. They may be differentiated clinically in nearly all cases by careful examination.

Etiology of Toxemia of Pregnancy.—The deduction made by Talbot is that the fundamental cause of toxemia of pregnancy with or without convulsions is not in the products of conception. In general the severity of the symptoms of toxemia is proportional to the amount of sepsis present. One of Talbot's cases was a marked exception to this statement. Talbot is convinced that to overcome the chronic sepsis which occurs in connection with the teeth, would surely eliminate the most potent cause of chronic nephritis.

Chronic Duodenal Obstruction.—Kellogg cites a case of duodenojejunostomy for duodenal ulcer which he believes is the first on record.

Three-Flap Operation for Extreme Pendulous Abdomen.—In this three-flap operation, which MacLean believes is the method of choice when the operative treatment is undertaken in the case of extreme pendulous abdomen, two long incisions, forming an ellipse, are made from one side of the abdomen to the other, the upper passing above the umbilicus, the lower passing about 2 inches above the fold where the abdomen hangs over the pubes. The skin and fat are dissected away from the external oblique aponeurosis until the ring of umbilicus is met. The abdomen is then opened at the umbilicus, and the mass dissected away from the umbilical ring. The part of the abdominal wall which has given way can be lifted up in the form of a cone with the umbilicus forming the apex. If the fingers be inserted within this cone the internal ring of the protusion can be felt at its base. The upper limits of the ring, while several inches from the umbilicus in the pendulous abdomen cases, is a point very close to the normal anatomic position of the umbilicus, and corresponds to the lowest linea transversea of the recti muscles. Two lateral incisions are now made from the umbilical ring to the inner margins of the recti muscles. A third incision is made from the umbilical ring downward to the firm lower margin of the internal ring where the recti muscles decussate. Three flaps are thus formed, two lower and one upper. The two lower flaps are overlapped from side to side, thus reducing by one half the space between the recti muscles. The free margin of each flap is stitched with strong chromic catgut to the firm margin of the sheath of the opposite rectus muscle. The upper flap is drawn upward, and the upper margin of this lower and now double flap is stitched to the upper margin of the so-called internal ring. The upper flap is next drawn and spread over the lower double flap and its margin stitched to the aponeurosis of the external oblique. The skin is closed, and three small tube drains are inserted, one at each angle and one in the center of the wound. In the place of the relaxed wall is now a threefold aponeurosis covering the opening and secured at every point to normal anatomic structures that have not yielded to the intra-abdominal pressure.

Texas State Journal of Medicine, Fort Worth

January, 1919, **14**, No. 9.

Results of Tonsillectomy During Acute Stage of Follicular Tonsillitis. R. H. Gough, Fort Worth, Tex.—p. 293.
*Evacuant Enema in Surgery. J. T. Moore, Houston, Tex.—p. 295.
Need for Improvement in Teaching Obstetrics. C. R. Hannah, Dallas, Tex.—p. 297.
Tonsillar Hemorrhage; Operative and Post-Operative. R. W. Moore, Fort Worth, Tex.—p. 300.

Evacuant Enema in Surgery.—The enema is regarded by Moore a more physiologic procedure for the preoperative preparation than the habit of giving a purge. He has operated on several patients without any other preparation, as far as the digestive tract is concerned. His routine procedure has been to have the patient eat as usual, giving a regular supper on the day previous to the operation. Following the supper, before bed time, an ordinary soap-suds enema of 1 quart is given. This empties the lower bowel. The patient is given plenty of water to drink during the night. Water should be offered the patient at intervals in the morning, whether asked for or not. At 6 or 7 o'clock in the morning another enema is given, usually with good, easy results. The patient has now one, two or three hours of rest before the operation is to be done, drinking water to within one hour of operation. Moore has noted that nausea is less frequent following anesthesia and operation where the enema has been used, as a result of the fluids being left in the tissues to be handled in the normal way.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

November, 1918, **41**, Parts 3 and 4.

*Occurrence of Unsuspected Involvement of Central Nervous System in Unselected Cases of Syphilis. P. Fildes, R. J. G. Parnell, and H. B. Maitland.—p. 255.
*Existence of Two Distinct Physiologic Systems for Transmission of Motor Impulses in Peripheral Nerves. J. R. Hunt.—p. 302.
Sensual Rôle of Proprioceptive Nerve-Supply of Extrinsic Ocular Muscles. C. S. Sherrington.—p. 332.
Some Principles of Neurology. H. Head.—p. 344.

Unsuspected Involvement of Central Nervous System in Syphilis.—Fildes and his associates examined 624 syphilitic men, of whom the great majority were in the early stages of the disease and showed no obvious signs of nervous disease. Of these, 18 per cent. showed undoubted signs of an abnormal condition of the central nervous system. Of all men who had been affected for more than six months and showed no symptoms, no less than 35 per cent. had abnormal central nervous systems. The onset of the abnormality may occur very early. In two cases it was demonstrable before the Wassermann reaction had become positive in the serum after infection. The nature of this abnormality in the central nervous system does not admit of doubt. It is a syphilitic meningitis. The authors base this opinion not only on the presence of lymphocytes in the cerebrospinal fluid but also on the frequent appearance of polymorphonuclear leukocytes in the more pronounced cases. Furthermore, in a large proportion of the abnormal cases, the fluid showed a positive Wassermann reaction, while in one case *S. pallida* was found by the method of dark-ground illumination. There is no evidence that previous arsenical treatment increases either the number or severity of the affected cases.

An outstanding feature of these cases is the almost total lack of symptoms. Very few of the men complained of disability even when the meningitis was acute enough to produce a visible opalescence in the cerebrospinal fluid. Very few of these men showed any clinical signs of nervous disease detectible by examination. On the other hand, a considerable proportion of the abnormal cases had lesions of the eye grounds, which were of slight extent, but which, nevertheless, indicated a commencing retinitis. A certain number of patients showed affections of the internal ears, but there was no evidence that these were commoner than among nonsyphilitics or syphilitics with apparently intact nervous systems. Antisyphilitic treatment has a marked ameliorating action on these conditions. Some are rapidly reduced to normal, while the great majority were shown to be improved within the period of observation. On the other hand, a few cases showed a remarkable resistance to treatment; the meningitis actually progressed in spite of repeatedly renewed treatment. Although the demonstration of a negative Wassermann reaction in the serum denotes that an affection of the central nervous system is improbable, the authors do not believe that it is excluded, and in view of the importance of early treatment (and the value of the operation in prognosis) it is probable that lumbar punctures should never be omitted as a routine in the examination of all cases of syphilis.

Existence of Two Distinct Physiologic Systems for Transmission of Motor Impulses in Peripheral Nerves.—The two systems described by Hunt are a paleokinetic system subserving the function of automatic and associated movements, and a neokinetic system for isolated synergic movements of cortical origin. He says that there are spinal, striospinal and corticospinal types of motility, all associated and working together harmoniously and representing different stages in the development of the nervous system. According to the hypothesis formulated in the present study, these subdivisions are not confined to the central nervous system but are continued as such in peripheral nerves. The peripheral motor neurones, therefore, include two separate and distinct physiologic systems related, respectively, to the striospinal and the corticospinal systems. The older of these, the paleokinetic system, is engaged in the transmission of the motor impulses of automatic and associated movements, while the more recent neokinetic system conveys the motor impulses of cortical origin. In other words, with the specialization of the central pathways there has been a corresponding specialization and differentiation in peripheral nerves, with the development of separate systems of fibers for striatal and cortical functions. Hunt, therefore, recognizes a continuous corticospinoneural system subserving a neokinetic function and a striospinoneural system subserving the function of paleokinetic motility. It is his belief that these two motor systems are associated with the development of corresponding reflex activities, so that striospinal and corticospinal types of reflexes may be recognized. It would also appear that certain differences in the two classical types of central hypertonus, spasticity and rigidity, e. g., the distribution and nature of the palsy, the associated deformity, the character of the hypertonicity and the alteration in reflex activity, may be explained on the basis of their relationships to the neokinetic and paleokinetic systems. Of special interest is the apparent preponderance of the disk system or sarcostyles in neokinetic motility as contrasted with that of the sarcoplasmic function which predominates in paleokinetic motility. This suggests that the more highly specialized forms of movement may be associated with an increased functional activity of the disk system.

British Journal of Tuberculosis, London

January, 1919, **13**, No. 1.

Next Step in Tuberculosis Movement. E. W. Hope and others.—p. 1.
Tuberculosis Colony in the Making. P. C. Varrier-Jones.—p. 14.
*Examination of Sputum for Tubercle Bacilli. G. B. Dixon.—p. 22.
Dispensary Supervision in Pulmonary Tuberculosis. G. Jessel.—p. 25.

Examination of Sputum for Tubercle Bacilli.—In Dixon's hands the Ellerman and Erlandsen method of examination of sputum for tubercle bacilli in a series of 945 instances gave 205, or 21 per cent., of positive results which were not demonstrated after one staining alone; and of the 205 positive results so obtained, 146, or 71 per cent., were obtained after the first concentration process, which, Dixon says, should be justification sufficient for the extra work involved, if any.

British Medical Journal, London

Jan. 25, 1919, **1**, No. 3030.

*Herpes Zoster: Cause and Association with Varicella. R. C. Low.—p. 91.
Public Measures for Prevention of Tuberculosis. N. Raw.—p. 92.
*Incidence of Albuminuria and Casts in British Soldiers During Training, and the Relationship of this Condition to War Nephritis. H. MacLean.—p. 94.
Policy of Ostrich (Venereal Disease Regulation). J. G. Adami.—p. 98.
*Life History of Ascaris Lumbricoides. F. H. Stewart.—p. 102.

Etiologic Relationship Between Herpes Zoster and Varicella.—Three cases are cited by Low which seem to show that there is some relationship between herpes zoster and varicella, that the virus of varicella might in certain circumstances, instead of producing a generalized eruption, cause a zoster eruption. He calls attention to the fact (1) that herpes zoster in a household is frequently followed by a case of chickenpox, (2) that cases of chickenpox may be followed by cases of herpes zoster in the same house, and (3) that cases of herpes zoster, in addition to the ordinary lesions, may show an eruption similar to chickenpox, so that one is almost forced to conclude that these two diseases are probably due to the same virus.

Relationship of Albuminuria and Casts to War Nephritis.—Among 50,000 men whose urine was examined, the total percentage of albuminuria (unaccounted for by pus, spermatozoa, blood, etc.) was found to be about 5 per cent. The average percentage of urines found to contain casts was 1.87; of this number 0.84 per cent. had definite epithelial casts, while in 1.03 per cent. hyaline casts only were found. MacLean is fairly certain that at least 132 cases of definite nephritis were returned from among the group of 50,000 men previously examined for albumin. As certain of the other twenty-nine cases were also, probably, suffering from nephritis, the total 161 cases may be taken as the maximum number of individuals who developed nephritis within nine months after being examined at the base. Out of the 161 patients returned as nephritis or albuminuria, only twenty-eight suffered from albuminuria just before going to the front. Of these, seven had epithelial and hyaline casts, while eight had hyaline casts only. Thus, out of the total 161 returns only 17.4 per cent, had albuminuria when examined a few months before they developed nephritis, while only 9.3 per cent. had both protein and casts.

Taking all these results together, it is contended by MacLean that the great majority of the cases that return from the front area as war nephritis do not show albuminuria a few months before contracting the disease. It would, therefore, seem that previous albuminuria plays little or no part in the etiology of war nephritis. The disease arises de novo, and is not an aggravation of some preexisting kidney defect the presence of which can be ascertained by any of the ordinary methods of examination.

Life History of Ascaris Lumbricoides.—Summing up our present knowledge of the larval development of this worm, Stewart says it has now been established that the ripe eggs of ascaris will hatch in the intestine of man, the pig, rat, mouse and guinea-pig, that the larvae enter the blood stream of the host, pass through the liver and heart to the lungs, there migrate from the capillaries into the alveoli, and thence through the bronchi and trachea to the pharynx. They reach the lungs and trachea between the sixth and eighth day after infection. Further, in the mouse the larvae then migrate down the alimentary canal and are passed alive, but not active, in the feces from the tenth to the sixteenth day.

Bulletin of Naval Medical Association of Japan, Tokyo

December, 1918, No. 21.

Grating Fiber in Congested Liver. H. Miyagawa.—p. 1.
Bulgarian Lactic Fermenting Bacillus. J. Ishiguro.—p. 3.
Anaphylaxy Following Inoculation of Bacteria. K. Ushijima.—p. 4.
Hyphomycetes of Eczema Marginatum (in Naval Depot at Kure). S. Imokawa.—p. 6.

Journal of Tropical Medicine and Hygiene, London

Jan. 15, **22**, No. 2.

Common Diseases of Sierra Leone Seen in British Hospitals. W. A. Young.—p. 11.

Lancet, London

Jan. 25, 1919, **2**, No. 4978.

General Practice. J. Pearse.—p. 129.
Accidental Hemorrhage in Connection with Eclampsism; Report of Cases. W. Smyly.—p. 133.
*Differential Diagnosis of Amebic and Bacillary Dysentery from Blood. G. M. Findlay.—p. 135.
Nasal Obstruction in Aviators. D. Guthrie.—p. 136.
*Postinfluenzal Hemoptysis. H. Wilson.—p. 137.
*Staphylococcus Aureus Septicemia Complicating Influenza in Malta. A. Patrick.—p. 137.
*Simply Prepared Culture Media for B. Influenza. A. Fleming.—p. 138.

Differential Diagnosis of Amebic and Bacillary Dysentery from Blood.—In the differentiation of amebic and bacillary types of dysentery the two following reactions have been used by Findlay: (1) the iodin reaction in the polymorphonuclear leukocytes; (2) the production of nuclear pseudopodia in the polymorphonuclear leukocytes. Taken in conjunction, Findlay says, these two tests enable an accurate diagnosis of the type of dysentery at an early stage of the disease in at least 90 per cent. of cases. The occurrence of a well-marked iodin reaction without the formation of nuclear pseudopodia is suggestive of a bacillary infection, while the absence of the iodin reaction and the presence of nuclear pseudopodia naturally point to an amebic origin. Should a well marked iodin reaction occur in conjunction with the formation of nuclear pseudopodia, the possibility of a mixed infection should not be overlooked.

Postinfluenzal Hemoptysis.—As a rule, the hemoptysis in influenzal cases commences toward the end of the illness, when there is a slight cough, an increase in weight, and no great tendency to wasting. The sputum shows a bright red staining, and not the typical rusty tint of acute pneumonia. Pneumococci are the predominant organisms and tubercle bacilli are absent. The characteristic physical signs are generally marked by their bilateral posterior distribution in the suprascapular areas, where breath sounds are faint and moist granular adventitious sounds are abundant, with no bronchial breathing and some bilateral impairment of the percussion note. The corresponding areas in front show little or no change, except some lack of resonance on percussion. The mid area of the lungs posteriorly is fairly clear, but the bases show congestive crepitation on both sides. The temperature, for a time, is irregular and fluctuating, and the pulse rate not so rapid as would be the case in a tubercular bacillary toxemia corresponding to similar physical signs. Careful observation of these cases for a few weeks will show subsidence of physical signs and temperature, with increasing weight and improved general condition. If, therefore, with slight hemoptysis the physical signs are bilateral and chiefly marked posteriorly, Wilson urges that it is well not to be too precipitate in diagnosing pulmonary tuberculosis, but to make frequent examinations of the chest and sputum while taking the general progress of the case into consideration.

Staphylococcus Aureus Septicemia Complicating Influenza in Malta.—The cases in which Staphylococcus aureus was found by Patrick were frequently those of a severe type of bronchopneumonia, with characteristic symptoms. The sputum of fifty patients with influenzal bronchopneumonia was examined bacteriologically. Nine of these fifty patients died, and *Staphylococcus aureus* had been found in the sputum of seven of them. The nine others who had shown staphylococcus recovered, though several had a severe attack. The amount of this organism grown from the sputum of the fatal cases varied, being sometimes a small growth mixed with other organisms, and once an abundant pure culture.

Simply Prepared Culture Medium for B. Influenzae.—Fleming emphasizes the advantages of blood altered in various ways on the growth of *B. influenzae*. He has had the opportunity of seeing and making many cultures of *B. influenzae* on agar with blood digested with trypsin. Wonderfully profuse growths can be obtained from its use. The preparation of the medium is, however, cumbersome, as it takes four or five days for the trypsin to produce the necessary change in the blood. It is thus impracticable to use such a medium if it desired to make cultures of *B. influenzae* without previous warning, unless a stock of the medium is kept on hand. It also requires sterile blood and sterile trypsin, which are not always to hand. Therefore, Fleming devised a medium which could be prepared on the spur of the moment.

If blood is added to a tube of agar and boiled for one minute the whole of the coloring matter of the blood and the coagulable protein is precipitated in masses. The tube can then be sloped, and before the agar cools sufficiently to become solid, the whole of this precipitate will have settled to the bottom, leaving the upper part of the medium clear. If *B. influenzae* is planted on this, an enormous growth results. The same result is obtained if blood corpuscles only are used. If 1 c.c. of blood is boiled with 9 c.c. water, the whole of the coloring matter of the blood and the coaguable protein is precipitated in masses which separate rapidly, leaving a clear, colorless, watery fluid. This fluid is added to liquid nutrient agar and sloped. On planting with *B. influenzae* a very profuse growth takes place. If to blood is added an equal volume of a normal solution of one of the strong mineral acids, such as sulphuric acid, the red color is immediately changed to brown by the breaking down of the hemoglobin. If an equivalent volume of normal caustic soda is added, a brown precipitate is formed and a brownish fluid separates. If this fluid is added to liquid agar, it furnishes a medium on which the most profuse cultures of *B. influenzae* can be obtained. It would appear, therefore, that so far as the growth of *B. influenzae* is concerned, sulphuric acid will effect the same change in blood in less than one minute that it takes trypsin four or five days to produce.

From the media described above very good emulsions of the bacillus can be obtained for agglutination purposes. By the addition of brilliant green to the medium, pneumococci, streptococci and staphylococci are inhibited to a much greater extent than is *B. influenzae*. Cultures of *B. influenzae* can be kept alive for a considerable period on a blood meat medium. The blood of all the patients tested by Fleming who were suffering from influenza agglutinated *B. influenzae*.

Bulletin de l'Académie de Médecine, Paris

Dec. 31, 1918, **80**, No. 52

Pneumonia in Influenza. F. Rathery and David.—p. 653.
*Stereoscopic Photography of Tympanum. Molinié.—p. 655.
*Spirillum Gangrene of Lung. P. Nolf.—p. 657.

Photography of the Tympanum.—Molinié relates, without particulars, that he has ascertained the angle of incidence for photography at the shortest distance, and has thus been enabled to photograph the tympanum with minutest details, and make stereoscopic views of it. These views are invaluable for teaching otology, and may have forensic import at times, as well as serving for historical records of war aerial shocks, etc.

Spirillum Gangrene of Lung.—Nolf has previously reported cases of fetid bronchitis due to spirilla and he here adds another to the list. The spirillar bronchitis followed influenzal bronchopneumonia, and necropsy revealed gangrene of the inferior lobe of the left lung. The microbe involved was probably an ordinary spirillum from the mouth or pharynx. There were evidences of pyorrhea alveolaris.

Journal de Chirurgie, Paris

December, 1918, **15**, No. 7

*Healing of Wounds. T. Tuffier and R. Desmarres.—p. 1.
Early Suture with War Fractures of Long Bones. G. Picot.—p. 15.
Suspension for Fractured Femur. Antoine and Masmonteil.—p. 22.

Healing of War Wounds.—Tuffier and Desmarres made a special study of the rate of healing in thirty cases of war wounds, applying various disinfectants, etc., with chart records showing the units of healing day by day. They found a marked tendency to separation into two phases. In the first phase, the destruction of the microbes is imperative, and everything to favor this is demanded. But when the microbes are once conquered, there is no further need for disinfectants, and their main effect then is to damage the delicate tissues forming in repair. Merely a dry absorbent dressing is called for then, but systematic exposure to the sunlight in their cases much shortened the period of healing. In some of their cases the healing expectancy of thirty-five days was shortened by fifteen days by heliotherapy.

Journal de Médecine de Bordeaux

December, 1918, **89**, No. 12

*Oscillometry in Transfusion. Maury and Soulé.—p. 347.
*Case of Rat Bite Fever. E. Secousse.—p. 349.
Ligation of Internal Carotid. Brau-Tapie.—p. 351.
Anesthesia to Electric Burn. R. Fabre.—p. 352.
Orthopedic Apparatus Made of Rattan. Cheyrou.—p. 354.
Pleural Effusions. G. Dubreuil.—p. 356.
A Serbian Neurologic Center. A. Hesnard.—p. 358.

The Oscillometer as a Guide for Transfusion.—Maury and Soulé compared the arterial pressure findings with the excursions of the needle of Pachon's oscillometer. This enabled important deductions to be drawn as to the need or not of transfusion. No other means of investigation will reveal the minute differences which represent the difference between adequate and inadequate circulation in cases of severe hemorrhage, etc.

Rat-Bite Fever.—Secousse reports a typical case of characteristic fever following a rat bite. The young second lieutenant was left with much depression and albuminuria after subsidence of the disease.

Paris Médical

Dec. 21, 1918, **8**, No. 51

*Rapid Cure of Causalgia. Lortat-Jacob and E. Girou.—p. 493.
Dermatitis as Factor in Trench Foot. Gougerot.—p. 495.
Apparatus for Fractured Humerus. Hallopeau, Auvigne, Ferrier and Gouverneur.—p. 500.
Technic for Epididymectomy. Uteau.—p. 503.

Ligation of Nerve for Causalgia.—Lortat-Jacob and Girou report that the pain with painful paralysis of the median nerve has subsided promptly and permanently in their experience after a catgut has been thrown around the nerve. This procedure was applied only in the particularly painful and absolutely rebellious cases of long standing, with grave and persisting modifications in the electric reactions. The ligature is applied above the lesions and the pain disappears within the same day. The catgut is absorbed but the effect persists.

Presse Médicale, Paris

Jan. 2, 1919, **27**, No. 1

*The "Vertigo That Restores Hearing." M. Lermoyez.—p. 1.
*Neuroses of the Diaphragm. D. Denéchau.—p. 3.
*Phlebitis and Septicemia. Dehelly.—p. 5.

Jan. 9, 1919, **27**, No. 2

*Effectual Drainage of the Pleura. L. Chevrier.—p. 9.
*Biologic Phenomena from Foreign Bodies. L. Ambard.—p. 11.
*Gage for Roentgen Exposures. T. Nogier.—p. 15.
*Regional Anesthesia for Amputation of Breast. G. Labat.—p. 16.

The "Vertigo That Restores Hearing."—Lermoyez has encountered a number of cases in which the ear had evidently become congested, and there was a tendency to tinnitus while the hearing grew less and less to apparently complete deafness. Then suddenly there was an attack of extreme dizziness, and as this passed off it was found that the hearing was approximately normal once more. He describes in detail three cases of the kind in men from 38 to 50. The mechanism seems to be like that in the foot when it "goes dead" from angiospasm, the result of extreme cold or emotional stress. The toes grow white and there is no feeling in them. But if the limb is rapidly heated, the blood rushes in, the toes grow red, and formication and sharp pain follow. For the latter, the French have a term, *onglée*. The inrushing blood restores conditions to practically normal and there is no further angiospasm. It is liable to recur, however, under the same circumstances.

Some of his patients had had a number of recurrences of the whole set of symptoms, the deafness and the sweeping away of the deafness, with the *onglée* of the labyrinth. The gradual obstruction or closure of the internal auditory artery entailed the progressive anesthesia of the ear, that is, the deafness. When the spasm suddenly subsides, the blood rushes into the labyrinth, and this sudden flood of blood which, in fingers and toes produces a sharp pain, in the labyrinth induces the special pain of the cochlear organ, manifested as tinnitus, and the special suffering of the vestibular apparatus, which is manifested as vertigo. It puts an end at the same time to the anesthesia of the ear, that is to say, to the deafness. The set of symptoms is exactly the reverse of what occurs in Menière's disease. With the latter the hearing is good; then comes sudden vertigo, and after this the gradual decline of the hearing. With the vertigo which Lermoyez describes, the hearing gradually grows poorer and poorer; then comes a severe attack of vertigo, and hearing is restored. The paroxysmal character of these disturbances excludes a permanent lesion like a hemorrhage. One of his patients sought voluntarily to bring on the attack of vertigo by whirling and loud noises, knowing that the attack restored his hearing for a certain time. In two women of 45 and 70 there seemed to be a combination of deafness of the Menière type along with deafness of the Lermoyez type.

Neuroses of the Diaphragm.—Denéchau refers in particular to cases of "big belly" or accordion abdomen in soldiers. His illustrations show the special type of distention as the result of derangement of the innervation of the diaphragm. In fully two fifths of his cases the label of tuberculous peritonitis had been affixed. The diagnosis is very simple if the possibility of a neurosis of the diaphragm is suspected. Treatment should be as for neuroses in general.

Septicemia from Phlebitis.—Dehelly reports a case which shows that septicemia may not be actual infection of the blood but may be merely the result of the pouring into the circulation of germs from some single focus. In his case this was an unsuspected phlebitis in the stump after amputation of the leg. When a second amputation was done higher up, thus cutting off the focus, there was no further septicemia. The discovery of the focus of phlebitis in the amputated segment of the limb was a surprise.

Drainage of the Pleura.—Chevrier's thirteen illustrations show the inefficiency of the usual modes of draining the pleura, and the superiority of the technic he describes, with the drainage provided at the very lowest point of what he calls the *vertébro-costale gouttière*, that is, the gutter formed by the curve of the ribs as they join the spine, the subject lying on his side or back. He first makes an exploratory incision and afterward a second purely for drainage, at the point where he has worked his finger through the first incision down to the very lowest point of this lowest space. He sends medicated vapors through from one incision to the other as the easiest means for sterilization of all recesses, and extols this combination as the best means for treatment of purulent pleurisy. A pleurotomy cannot be depended on to drain effectually except in the angulocostal line at the bottom of the vertebrocostal gutter, and at the very lowest point of this gutter, the patient lying on the sound side.

Duration of Biologic Phenomena after Introduction of Foreign Substance into the Organism.—Ambard comments on the great variability of the phenomena which follow the introduction of drugs or immune serums into the organism, and remarks that the ureosecretory coefficient allows these phenomena to be studied with much precision when the substance introduced passes out through the kidneys practically unmodified. For drugs, this eventuality is constant; for immune serums it is only hypothetical. The smallest dose of a drug that displays any apparent action, the liminal dose, as he calls it, must be reached before we can estimate the duration of its action. For example, if 0.20 gm. is the liminal dose of theobromin, and if 2 gm. is ingested at one dose, then the duration of its action will be the time necessary for elimination of 2 gm. minus 0.20 gm., that is, 1.80 gm. He reports research along this line from which emerges the law that the absolute value of the liminal dose is the principal element which determines the duration of the action of a drug. When more than ten times the liminal dose has been surpassed, the duration of its action increases very little, even for doses very much larger. The ureosecretory coefficient has been applied to the study of urea, ammonia, iodin, glucose and glycerin, and now Ambard has applied it to the study of the immune substances in so far as they are eliminated by the kidneys. This research has given him a new conception of anaphylaxis, as he describes. He now regards it as a sudden disintoxication. It is analogous to the phenomena observed when a morphin addict is suddenly deprived of morphin, only that in the latter case the disintoxication of the centers is accomplished by the kidney functioning alone, while in anaphylaxis the disintoxication of the centers is due to the drawing out of the toxic substances fastened to the centers. This drawing out of the toxic substances is done by another substance which has an affinity for them. This auxiliary hypothesis of the anaphylactic shock is the logical outcome of mathematical calculations, and it explains how a small preliminary dose of the immune serum wards off the anaphylactic shock by rendering the transition less abrupt.

Color Scale for Roentgen Exposures.—Nogier describes the Bordier chromoradiometer and states that he has used it in thousands of cases since 1906, and has always found it reliable. It is the only gage of the kind which is based on a scientifically defined unit. This unit should be substituted for the inexact methods in vogue otherwise, and particularly for the unit H. The unit used by Bordier is the amount of the rays which are capable of setting free 0.1 mg. of iodin in 1 c.c. of a 2 per cent. solution of iodoform in chloroform in a thickness of 1 c.c. shaded from the light. The dose of the rays is estimated by a pastille reagent of platinocyanid of barium. This is placed on the skin and the tint compared with the units of the color scale of the Bordier radiometer.

Regional Anesthesia for Amputation of the Breast.—Labat presents an illustrated description of the technic for infiltration of the skin and blocking the brachial plexus and the intercostal nerves, plus subcutaneous infiltration of the whole vast field of operation.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 28, 1918, **48**, No. 52

*Influenza. F. Wanner.—p. 1729.
Transmissibility of Condyloma Acuminatum. Tièche.—p. 1743.
*Toxic Injury of Eye. E. Ammann.—p. 1747.
Hydrotherapy of Malaria. T. Zangger.—p. 1751.

Jan. 4, 1919, **49**, No. 1

**Influenza. H. Sahli.—p. 1.*
*Lymphosarcomatosis and Leukemia. K. Schnyder.—p. 18.

Treatment of Influenza.—Wanner insists that the physician can do much to hasten recovery in influenza, helping to ward off complications on the part of the lungs and heart, to stimulate repair in lung and pleura, and promote the action of the whole apparatus of defense. This principle once recognized, each can apply it as he thinks best. When the patient has high fever and intense congestion from the start, Wanner gives hot drinks in abundance, and wraps in a large cold pack renewed every two hours. When the temperature has been reduced to 39 C., he gives hot packs instead of cold ones, with cataplasms, cupping, etc. He seeks to realize by these measures hyperemia in the organs racked by the disease. None of Wanner's patients with simple bronchitis complicating influenza died except one man of 70 with emphysema and enlarged prostate. The patient must have plenty of space; the wards must not be allowed to become crowded, and, above all, no case of pneumonia must be left in contact with cases of simple influenza. The light cases, the pneumonia complication cases, and the convalescents should all be in separate wards. When an influenza patient developed pneumonia, Wanner found that those around him developed it too, or the effect was seen in a peak in the temperature charts even when there were no durable results. He had a number of cases of pneumonia in which relapses occurred when the patients seemed to be well on the way to recovery but had been left in the same room with other cases of florid pneumonia. After these experiences, he made a point of removing the convalescents as soon as possible from contact with florid pneumonia. From the standpoint of contagion, the bronchopneumonia of influenza seems to behave like that of measles or whooping cough.

The damage from the toxins on the heart and circulation has to be combated at once. Camphorated oil in large doses should be given early, possibly digitalis, or caffein. The packs, cataplasms and cupping aid in the resorption of the exudation in the parenchyma of the lungs. Many patients with double pneumonia were thus tided past the danger point. One woman was brought in with bilateral pneumonia, dilatation of the heart and intense cyanosis, and was at the fifth month of pregnancy, but she left the hospital the twenty-fifth day, completely cured, the pregnancy continuing apparently unmodified. In the intensely toxic cases with a tendency to paralysis of the vasomotor centers, he found the effectual treatment was with epinephrin. Subcutaneous or intravenous injections of 0.001 gm. several times a day kept the pulse going well but did not modify conditions in the lungs. A fixation abscess seemed to do good service in some cases.

Industrial Poisoning of the Eyes.—Ammann reports injury of the eyes of certain workmen in a shoe factory from a substance used as a substitute for acetone oil in making patent leather parts of shoes. The injurious element in the new substance seemed to be chloracetone. In another establishment, a dye works, ammonium persulphate had been used instead of the usual sodium chromate. None of the workmen experienced any ill effects, but the proprietor developed a vesicular eruption on the skin, and blisters on the corneas. The man from whom the chemical was bought also displayed the same idiosyncrasy to the vicinity of the chemical, but the men handling it escaped. Ammann also describes a case in which ptomain poisoning from rotten beef caused ulceration of the cornea and fatal gastro-intestinal intoxication in one man. His son survived the intoxication, but he also developed ulceration in the cornea, reducing vision permanently to 1/25 right and finger counting at 20 inches left. Pflüger has published a similar case from eating spoiled cheese. Hegner has also reported a case of necrosis of the cornea after injections of salvarsan. Wessely and Köllner injected an alien serum intralamellar in a rabbit's cornea and parenchymatous keratitis developed. The incubation period of from five to nine days was the same as in Ammann's ptomain poisoning case.

Influenza.—Sahli proposes a theory in explanation of influenza which, he says, is found exclusively on facts. These facts are that bacteria seem to thrive better in mixed cultures; that influenza seems to be a mixed infection in the widest sense of the term; that the virulence of bacteria is influenced by other bacteria; that the virulence is enhanced by the receptivity of the organism—in other words by repeated passages through the animal body; that there may be a specific individual receptivity; that infections and especially droplet infections do not occur with a single bacterium but always with a number of bacteria, which are often of mixed species; that these mixed bacteria are liable to form a complex virus; that mixed cultures are liable to separate and turn into a single culture—both in the living body and in the test tube; that the main, the trunk epidemic may branch into various diverging subsidiary epidemics—these are all established facts, and especially well established for influenza. They explain influenza to be an obligate complex infection. The pneumococcus, the streptococcus, the influenza bacillus—possibly still others—form the obligate group, a symbiosis, a higher unit, which infects the organism as a unit. After infection has occurred, one or the other member of the group may develop preferentially. In one of his cases the sputum was swarming with influenza bacilli one day, and the next day the sputum was a thick pure culture of the pneumococcus. The complex virus, in twenty-four hours, had become completely transformed in the course of the single infection. This theory of an obligate complex virus throws light on the various features of influenza, as Sahli explains in detail. If an ultramicroscopic germ should yet be discovered, this would not invalidate the theory, but merely add another member to the group forming the obligate complex virus unit.

Lymphosarcomatosis.—Schnyder analyzes the special features of a case of generalized lymphosarcomatosis in a youth of 17 with lymphatic leukemia. A large tumor in the mediastinum, possibly originating in the thymus, with metastasis in lymph glands, kidneys, liver, gallbladder and dura, was accompanied by diffuse hyperplasia of the tonsils and base of the tongue, suggesting a leukemic or pseudoleukemic process. Similar findings were evident in the spleen.

Pediatria, Naples

January, 1919, 27, No. 1

*Immunization against Scarlet Fever. G. di Cristina and R. Pastore.—p. 1.
*Palate Sign of Inherited Syphilis. D. Tanturri.—p. 4.
*Congenital Syphilids in the Lungs. A. F. Canelli.—p. 11.
*The Blood in Infantile Sepsis. G. Milio.—p. 33.

Children Successfully Vaccinated Against Scarlet Fever.—Di Cristina's further experience has apparently confirmed the efficacy of the serovaccine obtained from the desquamated scales of scarlet fever patients. They seem to contain an antibody which, he says, appears to ensure immunity to the disease when injected subcutaneously. Horses treated with it developed antibodies in their serum to an amboceptor power of 2,000. For details of the technic he refers to his communication in 1916 (briefly summarized in The Journal, Sept. 30, 1916, p. 1049). Of forty children immunized by this means and left in the same room, sleeping in the same bed, with scarlet fever patients, not one contracted the disease. Of twenty-five children in families where there was a case of the disease, not one contracted it, and no case of scarlet fever developed in the hospital wards after the disease had been imported. Di Cristina and Pastore now announce that the method has stood so many tests that this immune prophylaxis against scarlet fever can be applied on a large scale. They have never witnessed any by-effects from it except very rarely a slight fleeting eruption—evidently an anaphylactic phenomenon—which might suggest scarlet fever if it were not for its rapid subsidence and the absence of all throat symptoms and fever. The children thus immunized have been followed for six months, and the continued presence of the induced amboceptors has been confirmed to date.

Palate Sign of Inherited Syphilis.—Tanturri has noticed that with inherited syphilis the edge of the soft palate as it arches over to the uvula has a characteristically irregular outline. Instead of forming a smooth edge, it looks dentated, as if both epithelial tissue and mucosa had been eroded. There may be loss of substance for 1 or 2 mm. from the edge, but the flexibility of the parts and the color are not modified. Those presenting it were of all ages, from the newly born to 20 years old, and he asserts that this eroded outline of the palate arch on both sides may be accepted as positive testimony to the existence of inherited syphilis. In seven newly born, with serious manifestations of inherited syphilis, this lacelike outline of the palate was exceptionally pronounced.

Congenital Syphilitic Lesions in the Lungs.—Canelli analyzes the literature on this subject, with three pages of bibliography, and describes the various types of syphilitic changes in the lungs. They are practically always fatal.

The Blood in Sepsis in Infants.—Milio's research on four healthy infants and on eleven with sepsis demonstrated that the blood in sepsis shows leukocytosis but not always polynucleosis. The specific gravity was found increased in 70 per cent. of the infants; the viscosity is reduced but coagulation occurs sooner than in normal blood. There does not seem to be any change in the percentage of water.

Policlinico, Rome

Jan. 12, 1919, 26, No. 2

Influenza. C. Artom.—p. 33.
Case of Aphasia in Typhoid Fever. P. de Tommasi.—p. 36.

Fistula and Other Lesions of Penis from Ring Slipped on during Sleep as a Practical Joke. R. Bottesclle.—p. 37.
*Conservative Treatment of Surgical Tuberculosis. G. Aperlo.—p. 40.

Conservative Treatment of Surgical Tuberculosis.—Aperlo pleads for early adequate organization of measures throughout Italy to combat surgical tuberculosis, especially glandular, bone and joint processes. He urges organization on an adequate scale of sea shore and other sanatoriums where heliotherapy, etc., can be systematically applied.

Riforma Medica, Naples

Dec. 14, 1918, **34**, No. 50

*Action of Chloroform on the Suprarenals. V. Aloi.—p. 990.
The Three Clinical Types of Influenza. G. Sofrè.—p. 991.
Diagnosis of Urologic Albumin. O. Cantelli.—p. 993.
Referendum on Influenza. G. Zagari and others.—p. 995.
Present Status of Obstetric Craniotomy. E. Aievoli.—p. 997.

Dec. 21, 1918, **34**, No. 51

*Gallstones and Mineral Waters. C. Fedeli and O. Torri.—p. 1010.
The Streptococcus in the First Phase of the Evolution of War Wounds. L. Durante.—p. 1014.
Mercuric Chlorid by the Vein in Influenza. A. Togliani.—p. 1018.
Present Status of Surgery for Internal Hydrocephalus. E. Aievoli. —p. 1019.

Action of Chloroform on Suprarenals.—Aloi's experiments confirm that chloroform induces increased production of epinephrin in the suprarenals. The epinephrin is poured out into the circulation, so that the suprarenals in this phase seem to have become exhausted and show very little epinephrin.

Gallstones and Hypercholesterolemia.—Fedeli and Torri have been conducting research with the mineral waters at Montecatini which are noted for their action in cholelithiasis. The metabolic findings and the course in six cases under the influence of the waters are reported in detail. The cholesterol content of the blood was much increased in all, and in every case it sank to normal figures under the influence of the spa treatment. Experimental research confirmed the clinical findings; all testifying that the saline-alkaline waters stimulate the secretion of bile; the less concentrated of the waters are more effectual in this respect, rendering the bile more fluid. This in turn helps to wash out the cholesterol, and the cholesterol content in the blood declines. At the same time the waters modify the general metabolism.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

July, 1918, **9**, No. 7

*Vaccine Therapy of Whooping Cough. T. Bayma.—p. 145.
Typhoid at S. Paulo. B. R. Pastana.—p. 149. Conc'n.

August, 1918, **9**, No. 8

Trachoma. J. Britto.—p. 169.
*Urinary Amebiasis. T. Bayma and A. Fagundes.—p. 173.

September, 1918, **9**, No. 9

*Typhoid Meningitis. A. P. U. Cintra.—p. 193.
*Nasal Diphtheria. P. Santos.—p. 202.

Vaccine Treatment of Pertussis.—Bayma was skeptical as to the efficacy of the autogenous vaccine prepared by Kraus from the sputum of whooping cough patients, but his experiences with this "antitossina" soon converted him. He made the vaccine from the whole sputum instead of using—like Kraus—merely the threads of mucus. His official report states that in the forty-seven cases given this treatment a cure was realized, and that it is to date the most effectual means for treating whooping cough yet known. This is his dictum from experience with hundreds of cases, and from the experience of others. Fully 3,500 c.c. of this vaccine was prepared at the Institute of Bacteriology, in his charge, and 2,200 c.c. of it was used by other clinicians.

Urinary Amebiasis.—Bayma and Fagundes relate that in the course of 1918 they found amebas in the urine from three patients. The total absence of symptoms from the bladder in two cases suggests fecal contamination of the urine. In the third case there was severe acute cystitis, and living amebas were found in both urine and stools. Epinephrin was given by the mouth (Bayma's method), and the bladder was flushed with the 1 per thousand solution. The bladder functioning promptly returned to normal, confirming anew, they say, the potency of epinephrin in human amebiasis.

Typhoid Meningitis.—Cintra reproduces Bayne Jones' tabulation of seventeen cases of purulent meningitis of typhoid origin, and adds several more he has compiled and one case from his own experience, bringing the total to twenty-seven recorded since 1901. Seventeen were recorded before that; thus there are forty known cases to date. This complication may occur at almost any stage of typhoid, and a fatal outcome is the rule. In exceptional cases the meningitis may be the first manifestation of the infection. In this case the clinical picture is that of meningococcus meningitis, as in his personal case. The man died the second day, the fifth day of his sickness, and typhoid bacilli were found in the cerebrospinal fluid. The localization of the germs in the meninges may be facilitated by some predisposing factor. The Wassermann reaction in this case was positive and there were other signs of syphilis. In the twenty-seven tabulated cases all but two proved fatal. One adult recovered after an operation, the meningitis having been restricted to the lumbar region. Another recovered from a subacute meningitis. The list includes three cases of primary acute meningitis, including Cintra's case, without intestinal lesions.

Nasal Diphtheria.—Santos has found diphtheria bacilli in the nose of infants more often than in the throat, a primary diphtheria of the nares being comparatively common in infants exposed to infection. It is almost invariably mild, but it may be followed by secondary diphtheria of the throat, and the mild nasal diphtheria may give rise to severe diphtheria in others. Association with streptococci renders the outlook graver. He calls attention to nasal diphtheria to emphasize the importance of isolation, and the necessity for school physicians and others to examine the nose as well as the throat of children.

Boletin de la Asoc. Med. de Puerto Rico, San Juan

December, 1918, **14**, No. 121

*Influenza in Porto Rico. F. del Valle Atiles.—p. 279.
Hydronephrosis from Calculus in Ureter. J. Avilés.—p. 286.

Influenza in Porto Rico.—Atiles relates that influenza appeared in Porto Rico in June soon after the arrival of a ship from Spain. It spread rapidly, and it is estimated that at one time fully 8 per cent. of the entire population had the disease simultaneously, and that 40 per cent. of the population were affected during the epidemic. Of the 250 physicians practicing in the island, 60 per cent. contracted the disease. All forms of the disease were encountered, from the mildest to the severest respiratory, gastro-intestinal and nervous forms, with predominance of the pneumonic type. The mortality was at least 2 per cent. In about 70 per cent. of the cases recovery occurred under serotherapy. The damage from alcohol given by the family against the physician's orders was particularly striking in the case of one girl with meningitis complicating influenza. Death followed almost at once. With the exception of serotherapy, treatment was only symptomatic; antistreptococcus serum proved very useful.

Brazil-Medico, Rio de Janeiro

Nov. 16, 1918, **32**, No. 46

*Operations on Syphilitics. J. de Mendonça.—p. 361.

Nov. 23, 1918, **32**, No. 47

Brazilian Gregarinas. (Bothriopsis Pirajia. n. sp.) Hasselmann.—p. 369.
Dermatology in Brazil. F. Terra.—p. 369.

Nov. 30, 1918, **32**, No. 48

*Experimental Research on Influenza. A. Marques da Cunha, O. Magalhães and O. da Fonseca.—p. 377.
Meningocele. A. F. de Magalhães.—p. 379.

Dec. 7, 1918, **32**, No. 49

Myxosporidia of Brazilian Fishes. O. M. da Cunha and O. da Fonseca. —p. 385.
*Blood Corpuscles in Yellow Fever. C. Fraga and A. S. Tavares. —p. 385.
*Abdominal Pain with Incipient Pneumonia and Febrile Rheumatism. O. Clark.—p. 388.

Surgery in Syphilis.—De Mendonça discusses both surgery for syphilitic lesions and the influence of syphilis on healing after any operation. In case of doubt in regard to the nature of tumors in the anorectal region—which are often extremely difficult to differentiate and often prove refractory to specific treatment—it is better to remove them even if time should demonstrate that the operation was unnecessary, rather than expose the patient to danger of metastasis from a sarcoma. He describes seven cases of this type of anorectal syphiloma. One man of 30 applied for treatment of hemorrhoids. The rectum showed lesions suspicious of syphilis, and specific treatment was advised preliminary to any operation. The man refused and was operated on in another town. A few months later he returned with advanced rectitis with profuse purulent secretion, and he died within a few months, the diagnosis still in doubt. This was before the days of the Wassermann reaction. In a second, equally unfavorable case, the patient was a man of 21 and the rectum, perineum and cellular tissue of the lower portion of the pelvis formed a single agglomeration, studded with fistulas.

An operation was done on a man of 40 for stenosis of the rectum, in 1913, but the rectitis persisted and grew constantly worse. The man had a history of syphilis but the Wassermann reaction was constantly negative. Specific treatment brought great improvement in the general health but the rectum had to be resected. In another young man with rectitis and stricture, improvement to recovery followed an operation for hemorrhoids and slitting the stricture. One patient in the group was a woman of 38 with a syphilitic husband. With a temporary artificial anus and specific treatment improvement was realized. Some surgeons maintain that syphilis does not retard the healing of wounds, but Mendonça's experience has convinced him that syphilis, as well as other constitutional diseases, is liable to exert a most unfavorable influence on operations, especially laparotomies. In three recent cases, the laparotomy wound opened again, or there was dilatation of stomach and intestines. The Wassermann reaction was strongly positive, and under specific treatment healing proceeded further without mishaps. Other instances are reported of complications in skin, etc., developing after operations on syphilitics, all emphasizing the wisdom of a course of specific treatment before attempting any operation on syphilitics.

Vaccine Therapy of Influenza.—Da Cunha and his co-workers inoculated monkeys with blood and sputum from influenza patients after filtering through a Berkefeld or Chamberland F candle. The temperature ran up afterwards to above 104 F. in one of the monkeys. In a second monkey there was fever but not quite so high. The blood from influenza patients induced a febrile reaction when injected in guinea-pigs. Inoculation of two men and one monkey with Pfeiffer's bacillus cultivated from the influenza patients was always negative. The monkeys first experimented on were inoculated anew with the sputum filtrate, but without any temperature response. This and other facts cited suggested the feasibility of vaccine treatment of influenza, using the sputum filtrate for the purpose, as a vaccine containing the ultramicroscopic microbe. They have not applied this vaccine in prophylaxis in the human, but the experiments on animals seem promising, and Nicolle and Lebailly have reported successful experiments in this line.

The Blood in Yellow Fever.—Fraga agrees with Couto and Sodré that the cause of the jaundice in yellow fever is to be sought in the blood. It is not due to any special fragility of the reds but to their destruction by the extremely toxic yellow fever virus, acting probably on the lipoids of the corpuscle membrane, with possibly a hemolysinic hemolysis.

Abdominal Pain at Onset of Febrile Rheumatism and Pneumonia.—Clark relates several instances of acute articular rheumatism in children which began with a sudden and intense pain in the abdomen, the child saying the pain was like a blow. In other cases this sudden intense pain opened the clinical picture of influenzal bronchopneumonia. Pneumonia in one young man started with such distressing vomiting and intense abdominal pain that death seemed imminent, but he had quite recovered by the end of the second week. Pleurisy and pericarditis may start with intense abdominal pain, and two cases were published last year in which infarction of the heart simulated acute surgical abdominal conditions.

Gaceta Medica de Caracas

Nov. 30, 1918, 25, No. 22

*Date of Fecundation. L. Razetti.—p. 232.
*Epidemic of Influenza. J. de D. V. Ruiz.—p. 233.

Date of Fecundation.—Razetti discusses the various theories in vogue and rejects all except those which accept the menstrual function as a preparation of the uterus for the embedding of the ovum. The internal secretion of the corpus luteum is what starts this preparation. According to this theory, there is no ripe follicle in the ovary during menstruation, and hence fecundation during this period is impossible.

Influenza in Venezuela.—Ruiz reviews his experiences at Macuto "during this terrible epidemic that is still keeping us in distressful armed expectation." The three other doctors in the town were down with the epidemic, and Ruiz had scarcely a moment's respite during those unforgettable days until the authorities sent from elsewhere other physicians to his aid. The eight deaths among 400 cases were of the septicemic type, with pneumonia under way before he saw them. He was impressed by the constantly slow pulse with good tension, in marked contrast to the extremely high fever, in all his cases except very young infants and the very old. A pulse of 54 to 85 accompanied temperatures up to 40 C. In certain convalescents from the thoracic form he found a pulse of 38 and 40 C. with a temperature under the tongue of 36 C. One patient, on the other hand, presented alarming tachycardia but it became transformed at once into bradycardia under a digitalis preparation. The slow pulse seemed always to be a favorable sign, as Ruiz has always found it associated with a good prognosis in yellow fever. It seems as if the virus causing the disease affected the medulla oblongata from the start. Strychnin was his main reliance for a tonic.

Medicina Ibera, Madrid

Nov. 2, 1918, 5, No. 52

Neoarsphenamin. J. S. de Grado.—p. 102.

Nov. 9, 1918, 5, No. 53

*Influenza. R. Velasco.—p. 128; R. Arroyo.—p. 129.
Iodin for Internal Use. A. S. Alvarez.—p. 130.

Nov 16, 1918, 5, No. 54

*Functional Retention of Urine. A. Pulido Martin.—p. 157.
Segmentation of Cadaver for Teaching Purposes. S. Sierra y Val.—p. 158.

Influenza.—Velasco remarks in these "Clinical Impressions" of the epidemic that influenza certainly confers immunity, as those who contracted the disease when it appeared in the spring escaped it when the epidemic flared up again in the fall, and vice versa. Another feature that impressed him was that the elderly usually escaped and when they did contract the disease it generally assumed a mild form in them. He noticed further that in every case in which there was intestinal hemorrhage, the outcome was favorable. The hemorrhages occurred between the twenty-fourth and sixtieth hours, presumably before ulceration could have developed. Some great change in the composition of the blood seems more probable.

Functional Retention of Urine in Woman.—Martin reports the case of a woman of 60, otherwise healthy, who every three or four years has had complete retention of urine lasting for four to six days, conditions then returning to clinically normal. The cystoscope revealed finally a minute papilloma, no larger than the head of a pin. This probably acted like a foreign body at times, setting up spasmodic contraction in the sphincter. It is possible, he adds, that closer search for some minute excrescence or lesion might upset the diagnosis of hysteria in a certain proportion of cases.

Prensa Medica Argentina, Buenos Aires

Nov. 30, 1918, 5, No. 18

Vestibular Nystagmus. R. Argañaraz.—p. 177. Cont'n.
Epidemic of Influenza. R. Kraus and L. Kantor.—p. 181.
*Tartar Emetic Cures Papillomas. S. Mazza.—p. 183.

Tartar Emetic Treatment of Papillomas.—Mazza's further experience has confirmed his statements that tartar emetic by the vein is a specific for papillomatous lesions. Seven illustrations of one case show the complete retrogression of a large crop of pointed condilomas. The drug is given in a 1 per cent. aqueous solution, sterilized by filtering through a Berkefeld filter. In the case described, twenty-four intravenous injections of 5 c.c. each realized the complete cure with no signs of recurrence during the ten months since.

Revista de la Asoc. Med. Argentina, Buenos Aires

September-October, 1918, **29**, No. 166-167

Spastic Constipation. J. Mendez.—p. 348.
Constipation. J. M. Escalier.—p. 363.
Surgery for Chronic Constipation. C. R. Lavalle.—p. 384.
*Factors in Chronic Constipation. C. B. Udaondo.—p. 398.
Classification of Constipation. R. Novaro.—p. 412.
*Surgery for Chronic Constipation. G. B. Arana.—p. 437.
*Medical Treatment of Habitual Constipation. I. Ymaz.—p. 492.

Chronic Constipation.—Recently the Asociacion Medica Argentina held a three day meeting for a thorough discussion of chronic constipation from all points of view. Udaondo emphasized the frequency of stomach derangement, especially motor insufficiency, as accompanying constipation. There seems to be a rupture of the gastro-intestinal functional correlations. Hyperacidity was exceptionally frequent in his cases of chronic constipation, as well as other symptoms indicating a neurosis of the vagus. This may disturb the functioning at almost any point in the digestive tract, spastic conditions or atony hindering the normal passage of stomach and bowel contents, and entailing acidity. In a number of cases tobacco seemed to be responsible for the irritation of the nerves, as conditions righted themselves when tobacco was dropped. The deleterious influence of tobacco was particularly manifest in cases in which spastic colitis was the principal manifestation of the hypervagotony. Arana discussed the surgical treatment for pericolitis and megacolon, and reported eight typical cases with illustrations. Ymaz emphasized that rational medical treatment of habitual constipation is possible only when the exact cause has been ascertained. He reviewed the medical field and warned that a diet to give more bulk to the feces must not be carried to extremes, as too large a quantity of indigestible tissues probably injures the mucosa more than a mild chemical stimulus. Morena remarked that pericolic membranes are a frequent finding at necropsies of children with a tendency to so-called chronic appendicitis. He has encountered in children all kinds of pericolitis and abnormally large cecum, colon, etc., and in nearly every instance there were attacks of pains or a chronic pain. But very seldom did these children display any tendency to chronic constipation. These findings sustain the assumption of the frqeuent congenital origin of these lesions.

Revista Española de Medicina y Cirugia, Barcelona

December, 1918, **1**, No. 6

*Radium for Cancer of Upper Air Passages. R. Botey.—p. 275.
*Bronchopneumonia in Children. E. Suñer.—p. 289.

Radium Treatment of Cancer of Upper Air Passages.—Botey gives an illustrated description of his methods for using radium. His experience has been that superficial epithelioma of the nose has usually been completely cured by six exposures of from thirty to sixty minutes each, at intervals of from four to seven days. His results were mediocre with epithelioma of the cheek and in the nose. There is no doubt that in treatment of cancer of the larynx small doses of radium with long exposures are not nearly so effectual as large doses for a few hours. But these large doses, even for a short period, induce such a secondary reaction that the method has to be abandoned. If the radium could act alike on all the cells of the cancer, the cure would be complete, but the deeper lying cells are not destroyed, and the effect on them is only to stimulate them. Metastasis and recurrence are more frequent than after a radical operation. The latter if done early, before there is glandular involvement, is still as ever, he reiterates, the best treatment. Radium treatment after operation aids in warding off recurrence. Radium applied directly to a cancer in the esophagus improves conditions for some months but the disease continues its course. In the upper air passages and larynx, superficial cancers not extending into the depths may be completely cured, especially if the radium tube can be buried in the mass of the tumor. Adenomas are the most amenable.

Bronchopneumonia in Children.—Suñer ascribes great differential importance to the continuous dyspnea with bronchopneumonia. When the dyspnea is due to the fever alone, and not to the lung or heart, the child may hold its breath a moment during auscultation. When it does this, it is a favorable sign as to the state of the lungs. Treatment of bronchopneumonia in children is mainly by hygiene and physical measures.

Revista Ibero-Americana de Ciencias Medicas, Madrid

November, 1918, **40**, No. 171

*Early Diagnosis of General Paralysis. R. A. G. Salazar.—p. 321.
Dislocations and Fractures of the Elbow. S. G. Hurtado.—p. 337. Conc'n.
Palography. A. Mut.—p. 347.
*Fibrous Forms of Pulmonary Tuberculosis. G. Triviño.—p. 355.

Early Diagnosis of General Paralysis.—Salazar remarks that there are no somatic signs which can be relied on to differentiate incipient general paralysis from neurasthenia. But he affirms that this is possible by study of the modifications in the mental processes. He has had a number of cases in which general paralysis developed under his eyes. As the dementia affects all the mental processes, the replies to any kinds of questions will soon reveal the mental impairment. He discusses in turn means to test the mental processes, the will power and the affections, and to elicit evidences of changes in them which will differentiate the cases at once from neurasthenia.

Fibrous Forms of Tuberculosis.—Triviño concludes his study of chronic fibrous pulmonary tuberculosis by emphasizing that a slow pulse in chronic tuberculosis is an eminently favorable sign. He urges that the pulse should be regularly recorded. When the pulse keeps at the same rate without change, and if there has been only brief and transient hemoptysis and fever on certain occasions, and if the general health keeps good, the pulmonary process is evidently of a fibrous type, and long survival may be anticipated provided the rules of hygiene are followed.

Revista Medica, Puebla, Mexico

Dec. 15, 1918, **1**, No. 5

*Pathology of Speech. J. Torres.—p. 97. Conc'n.
*Arsphenamin and Neoarsphenamin. A. B. Vasconcelos.—p. 101.
*Subcutaneous Injections of Oxygen. D. Vegara Lope.—p. 103.
*Chloroform Anesthesia with Tuberculosis. E. Olivares.—p. 107.
Notable Case of Transposition of Viscera. J. Farquet.—p. 111.
*The Mission of Medical Societies. J. G. Salazar.—p. 113.

The Pathology of Speech.—Torres here concludes his study of the *patologia del lenguage* in paranoiacs, laments and other grades of mental impairment. He remarks that a man under the influence of liquor runs the entire gamut of the pathology of speech. We see in a demonstrative and well defined epitome the entire involutive process of speech and the brain processes inspiring it. Starting with transient phases of exaltation, even brilliancy, the mental synthesis grows less and less, to absolute dementia, the man's utterances reproducing the mental and organic degeneration which induces the dementia during the brief period while the alcoholic intoxication lasts.

Arsphenamin versus Neo-Arsphenamin. — Vasconcelos relates that notwitstanding the general opinion that neo-arsphenamin is superior to arsphenamin, his experience has been that the latter is more effectual. He reserves neo-arsphenamin for patients with heart or vascular lesions or tendency to hemorrhage, or with veins difficult of access, or the very nervous. Also for children and when the drug has to be administered by the rectum. For treatment of infants, injection into the colon is the preferable method, he thinks.

Subcutaneous Injection of Oxygen.—Lope extols the advantages of subcutaneous injection of oxygen in cases of asphyxia, this simple but potent measure serving to recall to life many patients otherwise beyond relief. He reiterates that these injections are absolutely harmless, while the whole procedure is so simple that any practitioner can apply it. The oxygen is absorbed by the blood, and the relief was immediate in the case in which he applied it first, six years ago; the patient in advanced Bright's disease, suffering from recurring attacks of most distressing dyspnea. After injection of 150 c.c. of pure oxygen the improvement was so prompt and so marked that since then Lope has not hesitated to use this simple but heroic measure at need. In certain cases of asphyxia and dyspnea, inhalation of oxygen does not aid in the regeneration of the blood because the inflammatory process and its products in the air passages, or paralysis of the circulation in the lungs, may prevent absorption of the oxygen. It is in such cases that the oxygen injected into the blood proves a life saving measure. It has been advocated for certain other conditions, but he has applied it only in dyspneic states, including the dyspnea with operative or induced pneumothorax. A Pravaz needle with tube to connect it with the oxygen tank is all that is needed in an emergency, but it is better to have a graduated receptacle for the oxygen interposed between the douche can and the needle, with pinchcocks on each tube. By raising the douche can, the graduated jar fills with water; then the douche can is lowered, and the water flows back into it, thus aspirating the oxygen from the tank into the graduated jar. When it is full, the tube is disconnected with the tank and the needle is placed on the tube ready for the injection. The apparatus is illustrated. He advises keeping it charged and ready for use in hospitals or when conditions are liable to require it elsewhere.

The dyspnea subsides, the cyanosis disappears, the fever is reduced, respiration and pulse grow slower, the headache improves or subsides and the patient feels immeasurably better. The improvement may be transient or it may prove permanent. He was called one night urgently to a man of 70 with severe pneumonia and bad heart, who was lying unconscious on the floor near his bed, the cyanosis extreme, the pulse scarcely perceptible, the suffocation alarming. In a few minutes the oxygen injection was made without disturbing the patient as he lay on the floor. About 200 c.c. of pure oxygen were injected under the skin of the right flank. The impressive picture then was presented of actual return to life. In less than fifteen minutes he was sitting up, smiling, in bed, the livid tint all gone. He lived a year and a half longer. Certain writers advocate these injections in treatment of bronchopneumonia and in whooping cough.

Chloroform in Tuberculosis.—Olivares warns that a general anesthesia with chloroform seems to have a decidedly unfavorable action on incipient tuberculosis, whipping it up to a more rapid course. He relates three typical instances of this. Suspicion of tuberculosis should warn against the use of chloroform on account of its depressant action on the liver, etc. If chloroform has to be used, as little as possible should be given and for the shortest time possible.

The Mission of Medical Societies.—Salazar comments on the value of organization and cooperative research. The work of the individual, however meritorious it may be, cannot bear such fruit as when it is brought before others for criticism and stimulation. Especially in Mexico, he says, the diseases peculiar to the country have never been adequately studied. The medical lore and art are European, and it is a question how far they can apply to Mexico, as they were designed for a different country and a different people. It is scarcely known that tabardillo is not exactly the same as exanthematous typhus, that goiter is due to the water, that *mal del pinto* is very prevalent on the Pacific Coast. Medical societies usually dally with fragments of all kinds of subjects, instead of linking up a series of researches which would amount to something definite and valuable.

Revista de Medicina y Cirugia Practicas, Madrid

Nov. 7, 1918, **121**, No. 1529

*Relations between Skin and Heart Disease. E. de Oyarzábal.—p. 129.

Nov. 14, 1918, **121**, No. 1530

Placenta Praevia in Town and Country. J. de la Muela.—p. 161.

Nov. 21, 1918, **121**, No. 1531

*Enteralgia. R. del Valle y Aldabalde.—p. 193.

Pathology of the Skin in Connection with Internal Pathology.—Oyarzábal explains how impermeability of part of the lung entails hyperemia as the blood piles up against the obstacle. This hyperemia entails catarrh and bronchial secretion which in turn hamper the respiration and heart action. With cyanosis under these conditions, it is difficult to know whether the reduction in the respiration area or the venous stasis is responsible for it. Acute endocarditis, on the other hand, is often secondary to pustules, abscesses, or other processes inducing embolism in the vessels of the skin. Certain small vessels may thus be completely obstructed although the skin may show no signs of it. Embolism in the vessels of the liver may induce jaundice. The cheeks may be red and full but an experienced eye will detect a faint bluish tinge to the red, the first manifestation of heart disease. The circulation is growing sluggish so that the blood does not get fully oxygenated. The obstacles to free circulation of blood lead to stretching of other vessels and the stretched walls let the fluid through and edema results. The lymph plays only a subordinate rôle. The edema with heart disease obeys the laws of gravity, while the edema with nephritis may develop at other than the lowest points. With exophthalmic goiter, there may be a sensation of heat in the skin and profuse sweating. There is also a marked reduction in the resistance to the electric current. This may occur also with sclerodermia and myxedema. In certain cases of exophthalmic goiter the skin resembles the skin of myxedema.

Enteralgia.—Del Valle's patient is a business man with habitual good health who at the age of 41 had pain in the left iliac fossa without fever or vomiting. This pain has recurred at times during the seven years since rebellious to treatment. Worry over his tuberculous child had evidently induced an extremely nervous condition, and there is also probably some subacute inflammation, too slight for detection by palpation but enough, in connection with the extreme nervousness, to explain the rebellious enteralgia. These pains of mixed origin—a slight local lesion and tendency to neurosis —do not spread like ordinary pains along the nerve track nor do they radiate in special directions. The treatment should be directed mainly against the neurosis. As this subsides, the insignificant local lesion gets a rest and may heal at once.

Semana Medica, Buenos Aires

Oct. 17, 1918, **25**, *No. 42*

Comparison of Antitoxin and Haptinogenin in Diphtheria. J. Mendez. —p. 465.

Fetal Polycystic Kidney. F. A. Deluca.—p. 470.

Tuberculous Pyonephrosis. T. L. Mendez.—p. 473.

Postpartum Shock. S. E. Bermann.—p. 482.

Sugar Treatment of Tuberculosis. V. Delfino.—p. 486.

Siglo Medico, Madrid

Nov. 2, 1918, **65**, No. 3386

*Catheterization of Arteries and Veins. J. Goyanes.—p. 893.

Prophylaxis of Tuberculosis in Children. B. H. Briz.—p. 895.

Nov. 9, 1918, **65**, No. 3387

Promise of Vaccine Therapy in Influenza. A. Gimeno.—p. 913.

*The Pandemic of Influenza. G. Marañon, G. Pittaluga and A. R. Falco.—p. 916.

Treatment of Pneumonia in Children. B. H. Briz.—p. 921.

Catheterization of Arteries and Veins.—Goyanes comments on the important information to be derived from catheterization of arteries and veins in animals. In the clinic it is possible by this means to introduce a drug so that it will have an immediate and direct action on the focus. Local anesthesia can likewise be induced by way of the artery (Goyanes' method) or by way of the vein (Bier's method). In one case of extremely severe puerperal infection, he introduced the catheter into a collateral of the femoral artery in the triangle of Scarpa, pushing the tip of the catheter into the aorta above its bifurcation. Then the femoral arteries on both sides were vigorously compressed and a solution of a silver salt was injected through the catheter. It had to pass through the internal iliacs and spread thence throughout the whole of the infected visceral region. Goyanes has also introduced a large catheter into an artery to plug it and thus shut off the blood from the field of operation below. He thinks he was the first to apply on man this method of shutting off the blood for a major operation. In one case an extensive osteosarcoma of the root of the right thigh, involving the pelvis, with ulceration but no obliteration of the arteries, seemed to have originated in the greater trochanter. The tumor had been noticed for ten years and had grown rapidly to a large size in the last eighteen months. A catheter slipped into a condom was introduced into the femoral artery and pushed up to the aorta. Then the condom was distended with a few cubic centimeters of saline. At once the pulse stopped in all the arteries of the sound leg. The catheter was then withdrawn a trifle, after collapsing the condom by letting the fluid in it run out. The pulse then reappeared in the sound limb, showing that the obstruction now was only in the common iliac artery, and the condom was distended anew, completely plugging this artery. The femoral artery was then ligated just above the point where the catheter entered it, which held the catheter firm. The artery was thus firmly plugged, and the limb and nearly half of the pelvis were amputated, sawing the horizontal ramus of the pubis. The shutting off of the blood was so complete that the gluteal and sciatic arteries did not bleed when they were severed. The operation had to be so extensive that it made too much demands on the patient, long debilitated by the sarcoma, and he died ten hours later.

Influenza.—Marañon and his co-workers were sent to France to study conditions there, and they report that the prevailing epidemic is the same disease that has been prevailing in Spain. The therapeutic and prophylactic measures are about the same—nothing new and effectual has been discovered as yet. Vaccine therapy seems to offer the best promise.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Dec. 7, 1918, **2**, No. 23

*Reform in Medical Education. G. van Rijnberk.—p. 1795.
*Emergency Dressings That Will Not Slip. C. de Mooy.—p. 1806.
*Diagnosis of Nephritis in Children. J. C. Schippers and C. de Lange.—p. 1809. Commenced in No. 22, p. 1733.
The National Association and the Specialists. A. Sikkel.—p. 1824.
Mercuric Chlorid in Influenza. A. J. D. van Twist.—p. 1826.

Reform in Medical Education.—In this fourth editorial on this subject, van Rijnberk quotes the views of Profs. W. H. Welch, F. P. Mall and C. M. Jackson on the aims and ideals of medical education and the best means to realize them.

Emergency Dressings.—De Mooy advises that instead of removing the clothing to obtain access to a wound, the part over the wound should merely be slit and turned back. Then after the wound has been dressed, the slit garment can be brought together over it, and be wound above and below with a strip of gauze. By this means, the dressing is fastened immovably in place. After an amputation, the leg or sleeve of the garment can be tied together below or turned back and fastened. By this method the wounded are spared the discomfort and chilling from stripping off of the garment. Seventeen small diagrams show the application of the principle to wounds in different regions.

Nephritis in Children.—Schippers and De Lange state that examination of the urine of 1,000 children at the Children's Hospital at Amsterdam failed to show any dependable connection between the presence of formed elements, of albumin or of chondroitin and the existence of nephritis in dubious cases. They occur with nephritis but they may also occur in the healthy. On the other hand, functional tests of the kidneys generally reflect the functional capacity of these organs, and they may be relied on to clear up the diagnosis. The two tests applied in the research reported were the accommodation test and the metabolic findings on the Hedinger and Schlayer test diet. The findings with these two methods are tabulated for comparison, filling three pages, as recorded for twenty-two children, ten with clinically normal kidneys and three each with orthostatic or atypical albuminuria or convalescing from acute nephritis or with paedonephritis. The latter is Heubner's term for a benign inflammation of the bladder without phenomena on the part of the vessels, but with a small number of formed elements in the urine and albuminuria, often of an orthostatic type. These tests revealed that one case which seemed to be mere orthostatic albuminuria proved to be strongly suspicious of nephritis, as also two cases, otherwise atypical albuminuria. The fluctuations found even in normal children warn, however, that the limit between health and disease is not sharply defined. Some of the children listed as normal may yet prove to have incipient contracted kidney, explaining the wide range in their supposedly normal condition.

They list further the findings when 0.5 gm. potassium iodid was given to the children in a wafer with a little water. After the fortieth hour the urine was tested regularly for iodin. In the normal children all the drug had been eliminated by the forty-first hour, probably from the twenty-eighth to the thirty-eighth hours. With one child with nephritis the elimination dragged along to the forty-fourth hour, as also in a case of paedonephritis, and to the forty-second hour with an atypical albuminuria. In all the other children tested no traces of the drug could be found by the fortieth hour. With the accommodation test, the subject drinks from 500 c.c. to 1.5 liters water and the glomerulus function is estimated by the time required for this mass of fluid to be eliminated. Adults may void 500 c.c. or more at the first micturition, and healthy kidneys eliminate the whole and as a rule even a little more, within four hours. The specific gravity falls to 1.002 or 1.001. The diuresis afterward is much reduced, and the specific gravity then reaches 1.025 or 1.030. The children are kept on the usual standard diet for their age for several days. The urine is voided at 6 and at 7 a. m. Then the child drinks 300 c.c. or more of water and nothing more is given to drink till 7 p. m. If it complains of thirst it is given an apple. At 11 a. m., 1 and 4 p. m. it is given a test meal of bread and biscuits, with cake, jam or cheese, but without butter, and at 7 p. m. it gets the usual food. The urine is collected separately at seven two-hour intervals and the amount, specific gravity and salt content are recorded for each specimen, to test the concentration as a tubuli function.

The research reported confirms the value of these two tests when confronted with a puzzling case of albumin or formed elements or chondroitin in the urine with nothing else to suggest nephritis. Repetition of the tests will usually throw light on the most puzzling cases, as the choice of a trade or profession or acceptance for life insurance cannot wait for time to clear up the case by the ultimate outcome. Pollitzer's test was also given a thorough trial and found not practicable. The findings with it demonstrated, however, the importance of extrarenal factors in the diuresis. The kidney functioning cannot be estimated apart from the organism as a whole.

Ugeskrift for Læger, Copenhagen

Dec. 19, 1918, **80**, No. 51

*False Heredity. K. H. Krabbe.—p. 2005.
*Isolation in Influenza. H. Jensen.—p. 2012.
Reduction of Morbidity and Mortality Under Recent Restrictions on Alcohol. P. Heiberg.—p. 2013.

False Heredity.—Krabbe means by this term the development of disease in which the heredity of occupation is involved instead of inheritance of an organic pathologic tendency. The importance of recognition of the true cause is evident, as removal of the cause will put an end to the disturbances in this case, while it is not so easy to cure an organic disease. A specific instance is related, a man presenting intense tremor of the hands for many years, and finally his son developing the same tremor. The diagnosis wavered for some time between paralysis agitans, sclerosis in patches and pseudosclerosis. Krabbe parenthetically remarks that when there is any doubt, one can be certain that neither of these diseases is involved. The son at 33 developed the same symptoms as the father, and for nine years they were accepted as an inherited nervous disease. Then some one investigated the exact nature of the work of the two. They were listed as "instrument makers," but it was found that their business was to fill thermometers with mercury!

Importance of Isolation in Influenza.—Jensen had every person with influenza in his town strictly isolated from the first symptoms, the attendants wearing overgarments and masks. The epidemic thus was restricted to one case in each of ten families, and all but two were imported cases. The population is less than a thousand, but the houses are small and in some as many as ten persons sleep in one room.